TRANSLATION AND ACCUMULATION:

SPATIAL POLITICS OF PARKS AND TREES IN CHINA

By

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ABSTRACT

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Thesis directed by Professor Emily T. Yeh

This thesis examines two political and distinctly spatial processes in contemporary approaches to the environment in China: *translation* and *accumulation*. With China's increasing international environmental leadership, how environmental goals are pursued in China matters– for the lives of residents in project areas, for climate change, and for the models of environmental approaches that circulate globally. This thesis' first chapter develops an analytic of *translation* through a study on China's new national park system. It explores how Western-based conservationists have been involved in "translating" the concept and practice of national parks to China. It argues that this translation begins with "translators'" intimate, affective experiences of nature and proceeds through diplomatic "speech strategies" that show how politics infuse translation at the interpersonal scale. There are of course no "direct translations" of national parks, and how this translation project "lands" in Chinese contexts bears effects contingent on geographical and historical particularities. The second chapter examines *accumulation* in approaches to the environment through the case of Ant Forest, a highly popular app-based project run by Chinese financial technology giant Ant Group that transforms individuals' green, low-carbon actions into afforestation projects. The chapter investigates the promise of financial technology (combined as "fintech") to solve environmental problems. It finds that Ant Forest, in harnessing fintech, defines "green" activities more according to political-economic relationships that generate corporate profit, than according to actual environmental benefit, and that in models like Ant's, fintech opens possibilities for novel sites of value production in processes of

capital accumulation, especially in articulation with carbon markets, which financialize nature. *Translation* of national parks and *accumulation* in Ant Forest illustrate how politics and spatiality are intricately intertwined in approaches to environmental challenges in China today.

This research demonstrates that attention to these spatial politics is essential to evaluating both justness and effectiveness in proposals like national parks and green fintech.

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INTRODUCTION

In September, 2020, at the annual meeting of the United Nations General Assembly, President Xi Jinping, video-conferenced in, sat with hands folded on the table before him, flag hanging to his right and painting of the Great Wall behind. With characteristic poise, he announced plans for his nation to reach peak carbon emissions by 2030, and carbon neutrality by 2060. "We call on all countries," he intoned, "to pursue innovative, coordinated green and open development for all, seize the historic opportunities presented by the new round of scientific and technological revolution and industrial transformation, achieve a green recovery of the world economy in the post-COVID era and thus create a powerful force driving sustainable development." *Fortune* magazine called it "a bombshell environmental declaration;"[1] the East Asia Forum reported that it "took even seasoned China-watchers by surprise," and is of "unparalleled importance to global climate change mitigation efforts."[2] These reactions represent the latest in efforts to reckon with the "rise of China," and especially its growing role in environmental leadership on the international stage. By developing new approaches to environmental problems, and reworking old ones, China disrupts the order of environmental politics, positioning itself, instead of Western nations, as a power that generates environmental discourses. This thesis addresses two significant and ongoing developments in approaches to the environment in China: a new national park system planned to become the crown jewel of the central state's protected area system, and the wild success of Ant Forest, an app-based green finance scheme that transforms individuals' low-carbon actions into afforestation projects. Both approaches promise impressive environmental progress and have attracted praise from international conservation

[1] Elegant, Naomi Xu. 2020. "Xi Jinping's 'Carbon Neutrality' Bombshell Leaves China in a Climate Conundrum." *Fortune*, October 31, 2020. https://fortune.com/2020/10/31/china-carbon-neutrality-climate-change/.
[2] Green, Fergus. 2020. "Xi Jinping's Pledge: Will China Be Carbon Neutral by 2060?" *East Asia Forum*. October 26, 2020. https://www.eastasiaforum.org/2020/10/26/xi-jinpings-pledge-will-china-be-carbon-neutral-by-2060/.

and green finance communities. Bold new initiatives such as these are indeed needed to confront environmental problems, but what of the politics of these ecological endeavors?

How environmental goals are pursued in China matters-- their implications for biodiversity, climate change and the lives of residents in project areas are substantial. The central concerns of this thesis, then– the political and distinctly spatial processes that constitute approaches to the environment– deserve careful examination. Understanding these processes is essential to evaluating both effectiveness and justness in approaches to environmental goals in China. Through this thesis' two substantive chapters, I address two political and spatial processes: *translation* and *accumulation.*

China's national park project, wherein I develop the analytic of *translation*, presents a familiar conservation approach, but, with a vision to cover 18% of China's massive land area by 2035, at an unprecedented geographic scope.[3] The national park project in China also presents an unusual formation of international politics: the parks represent the application of a distinctly Western arrangement of land tenure, management, science and nature ideals, but in a nation positioning itself as a global environmental leader that brings an explicitly *Chinese* theory and practice of environmental action to the table. This leadership is exemplified by Xi Jinping's "ecological civilization" and its promotion in international arenas such as the UN's most recent (actually, as of this writing, only partially completed due to pandemic disruptions) Biodiversity Conference, themed "Ecological Civilization: Building a Shared Future for All Life on Earth." Amidst an extensive and distinguished literature on the political ecology of protected areas that reveals the deleterious roles Western actors have played in often well-intentioned but ultimately dispossessory park projects around the world, what role do such actors play in China? I ask not only how Western conservation actors involved in China's park project define nature and

[3] National Forestry and Grassland Administration, National Park Administration (*guojia linye he caoyuan ju, guojia gongyuan guanli ju*). 2020. "Overview of National Park Policy (*guojia gongyuan zhengce sulan*)." November 4, 2020. http://www.forestry.gov.cn/main/6028/20201105/094837755584323.html.

protected areas, but also how the concept of translation might deepen an analysis of the work and communication strategies through which such definitions are conveyed. What pieces of these definitions are taken up (and which are rejected and reworked) in Chinese park policy, and what might all this mean for the implementation of parks in China?

App-based afforestation, where I consider *accumulation*,[4] may seem a less familiar environmental approach to many Western audiences (although multiple historical reforestation/afforestation campaigns make this practice less remarkable in many areas of China), but it is similarly unprecedented in scope. Ant Forest is responsible for more than 200 million trees planted over more than 2.74 million *mu*, equal to (by Ant's calculation) more than 12 million tons of reduced carbon emissions.[5] What shapes outcomes in this case is less a power-constellation with Western ideals and their purveyors (though I do not rule out their involvement), but rather a power-constellation with capital and its interests in a world of increasingly financialized nature. I ask: what happens when financial technology, or fintech, expands into the realm of the environment? When trees' ability to sequester carbon becomes valuable in China, what arrangements of capital, technology, techniques of accounting and the state emerge, and with what effects on capital accumulation and on atmospheric carbon?

Spatial Politics of Parks and Trees

[4] Capital and accumulation, to be clear, are likely involved in the construction of national parks as well, through ecotourism and other forms of development, and translation is at work in afforestation and carbon credit production too, through international exchange of systems of carbon accounting, for example. For the sake of clarity, however, and for methodological reasons, the focus of chapter one remains on translation in parks, and chapter two on accumulation in fintech afforestation.

[5] "Alipay Sustainability Report 2019-2020: Towards a Better Society for the Future." 2020. Ant Group, Alipay. https://gw.alipayobjects.com/os/bmw-prod/e39c99c2-0193-40fc-8265-cf4f72a8367e.pdf.

A key finding of this thesis, illuminated by considering *translation* alongside *accumulation*, is that politics and spatiality are intricately intertwined in approaches to environmental challenges in China today. In the case of national park "translation," I will explore the spatiality of how definitions of nature travel, and how they arise from personal, place-specific experiences, then arrive to and feed policy in entirely different contexts. The pathways along which ideas travel are etched by politics that shape who can access those pathways and who therefore has influence over which ideas spread. The stickiness of traveling ideas and the extent to which they can be rejected and reworked is also impacted by relations of power, both between individuals and between nations.

The case of afforestation *accumulation* is similarly a system of connections across space, but where what travels is not definitions of nature, but rather money and carbon credits. In Ant Forest, urban users, and even I in America, can engage in green activities *here*, resulting in a tree *there*. Meanwhile, I investigate in chapter two how monetary transactions in the app direct the transit of money to particular locations (such as Ant's Hangzhou headquarters) and not others. I further explore how this spatiality of accumulation is shaped by the politics of business relationships and of state regulation.

To borrow from Doreen Massey (1993), both cases evidence "power-geometries." In particular, this thesis' analyses of *translation* of national parks and *accumulation* in Ant Forest point to two forms of spatial politics, or power-geometries, that emerge in both: frontiers and produced nature. These two forms, this thesis suggests, commonly characterize contemporary approaches to environmental problems in China. Frontiers loom large in analyses of Western, and especially American, nature ideals, where visions of cowboys spur production of imagined pristine, and often forcibly de-peopled spaces fresh and open for the next adventure of "rugged individualism" (Cronon 1996). In China, I find in chapter one that policy document language that nationalizes nature discursively seeks to more fully envelop remote western park "frontiers" into the conceptual nation. Meanwhile, prioritization of ecological protection in the planned park

management supports spatial-scientific planning that heralds a new flavor of material territorialization. In the case of afforestation, the frontier that emerges from my study in chapter two is one of capital. Drawing on Rosa Luxemburg's (1913) theorization of capital's requirement for "constitutive outsides," and more recent identifications of finance as an operation particularly adept at producing such outsides in contemporary capitalism (e.g. Mezzadra and Neilson 2019), I see trees and the carbon they sequester as a next "outside." This carbon outside is currently in the process, through Ant Forest other similar efforts, of being subsumed by capital. Translation and accumulation thus demonstrate how frontiers of nature work to, and indeed are required to, reproduce both capital and the state. With both parks and trees, frontier spaces, material and conceptual, do political service in supporting these power relations.

The second power-geometry form of spatial politics is produced nature. When I began this project, I conceptualized two modes of conserved nature– national parks to conserve species and habitats, and afforestation to conserve, albeit somewhat more obliquely, tolerable concentrations of atmospheric carbon. But here I'd like to suggest how we can think of both modes as cases of spatial-political production of nature. Neil Smith (1984) has famously declared nature a bourgeoise ideology and a social product, rife with tension between "external" and "universal" versions, born from the advent of industrial capitalism. It is this ideological production of nature that concerns the first chapter on national parks, where investigating the work of park "translators" themselves illuminates the spatial and political aspects of such production. Another facet, however, of Smith's "production of nature" is his development of the concepts of "first" and "second nature," where second nature, produced from first, comprises the material products of labor ("social matter"), until, with capitalism's progression, first nature is increasingly subsumed into second nature. The two eventually grow indistinguishable, such that every bit of "social matter" has both a material aspect and an abstract one attached to its exchange-value. This indeed is the totalizing sense one gets from the story of Ant Forest, where "second nature" trees are produced with both a material aspect (they are there, in the

landscape, after all) and an abstract one (value as carbon exchangeable on a market). “Second nature” trees, as I will show, are uniquely spatial and political in their ties to app users, carbon accounting experts and sites of capital accumulation.

Of Politics and Pandemics

This project reflects and contributes to a methodological grappling with social science research under the conditions of global pandemic and political tensions, specifically those between China and the United States from 2020 to 2022. A pandemic travel ban for foreign citizens, extensive quarantining requirements, exorbitant flight prices and risk of Chinese domestic travel restrictions conspired to make traditional field research in China a logistical impossibility for this project. According to a methodological framing I explain in the next section, I turned to alternative methods, including online interviews over Zoom, analysis of Chinese policy documents, and digital autoethnography. A bundle of political sensitivities, however, enmeshed with a declining U.S.-China relationship and my own positionality as an American researcher, posed further constraints. First, the persistent possibility of internet surveillance in China can make interlocutors hesitant to share things over internet communications and certainly made me hesitant to seek out such contacts, especially among marginalized populations like rural residents in parks and afforestation areas. Second, the failing bilateral relationship has increased general hesitancy in China to speak with American researchers. I encountered this in the vast discrepancy between response rates to cold-email requests for online interviews sent to potential Western- and China-based interlocutors. Nearly all American and Canadian conservationists I contacted about involvement in China’s national park project (chapter 1) responded favorably, whereas securing interviews with Chinese conservationists, NGO workers,

entrepreneurs, and even academics working on afforestation (chapter 2) required months of seeking and building contacts, and many dead ends. Several of the latter group of interviewees who agreed to talk with me in fact did so from the U.S., where they were “riding out” the pandemic or collaborating with or working for U.S. organizations or institutions.

Finally, the specific case of afforestation I chose to focus on for that section of the project– Ant Forest, which is housed within the Alipay app now operated by Ant Group– became highly politically sensitive over the course of my research in a way I could not have predicted. As I recount in chapter 2, central-state financial regulators pulled Ant Group’s initial public offering from the Shanghai and Hong Kong exchanges around the time I began my research over concerns about monopoly and risky loan practices in the Group’s microloan divisions. What followed was a lengthy and dramatic process of investigations, into both Ant and regulators who initially green-lighted the IPO, and requirements that Ant restructure its business. The extremely well-connected founding father of Ant, Jack Ma, seemed at the center of it all, and went missing from the public eye for a period. One result of all this, as I discovered, was that no one wanted to talk about Ant anymore. Once the material of United National Environmental Programme accolades, even Ant Forest, Ant’s seemingly benign environmental project, became off-limits, at least as far as talking to a researcher was concerned. While some of my earlier interviews quite candidly addressed Ant Forest’s activities, later interviews hewed more to adjacent topics– issues of land tenure in afforestation projects, links between afforestation and the carbon market, entrepreneurial investment in forestry– as I sensed or was told directly that I had strayed beyond a boundary. As one entrepreneur responded to a question about recent declining investment in private afforestation projects, “that’s a very important question, but it’s not a Zoom question” (personal communication, 2022).

A central concern with both national parks and with afforestation that appears only limitedly in the chapters, due to research constraints, are the effects of these projects on resident and local populations. Information on this aspect came to me only in snippets:

government estimates of the number of people living in national park core and buffer zones; an Ant promotional report spotlighting a family who is making money selling sea buckthorn juice from afforested buckthorn online to health-conscious urbanites; an indirect report from an interlocutor who had heard that some national park residents now working as rangers didn't even live in or near the park anymore, but instead have strapped their camera traps to trees and relocated to down-mountain towns. Such snippets raise important questions about local impacts; a lack of answers in these pages is due to the constraints discussed above. Thus, concerns with social impacts at a local level have always motivated this project, and while I was not able to empirically elucidate them here, I argue that they still hold an important position in my methodological response to these constraints, which I propose to call "field-as-network."

Networking the Field

Research under the conditions described above requires a reworking of "the field" and what researchers such as myself might do "there." Methodological advances in feminist and Indigenous geographies, where issues of field accessibility, unequal relations of power in the field, and extractive, colonial research have already attracted serious consideration, offer valuable insights for this project. Feminist critiques of fieldwork have done important work in framing "the field" as a decidedly political and relational space. Some feminist researchers have confronted the traditional home-field dichotomy as an act of "displacement" that researchers employ to create space and differentiability between themselves and their study objects (Katz 1994). Some have pursued more just methodologies by shifting field sites closer to home, though sometimes only to find that power relations remain just as fraught in a researcher's own community (Gilbert 1994). Indigenous geographers' work additionally contributes an

understanding of the field as a space of often-contested knowledge sovereignty. Linda Tuhiwai Smith (1999), for example, identifies imperialism as alive and well in research today, and calls for a decolonization project that questions the researcher's right to knowledge and truth.

With the onset of the COVID pandemic, Günel et al. (2020) have drawn on such critiques of fieldwork to suggest a "patchwork ethnography" approach to research in a pandemic-stricken world. This entails creative ways of gathering fragmentary but rigorous data, including shorter but more regular fieldwork stints (when travel is possible). They suggest that this way forward takes into account shifting working and living conditions, including high demands of the academy and gendered commitments to family caretaking. It expands what "counts" as scholarship to transform "constrained" circumstances into opportunities for fresh methodological directions and insights.

Building on Günel et al.'s approach and call for methodological innovation, I have pursued in this project a non-traditional construction of "the field." Moving beyond Günel et al.'s framing of multiply-sourced data or ethnography conducted in snatches as "fragmentary," I propose to stitch those patches together, and highlight linkages across space with the concept of *field-as-network*. Field-as-network reimagines the field itself as a network, a system of relationship "links" that connect people, places, things and processes ("nodes"), including across great spatial and temporal distances. Field-as-network lends itself to addressing feminist and Indigenous concerns with power in the field by providing a structure for seeing and analyzing how this power works. This is a structure that readily includes both "home" and the traditional "field," making obvious the connections between them and dissolving the boundary between. Field-as-network means that "going to the field" can but does not necessarily entail travel to a specific site; instead, and especially in a pandemic and in times of political tensions, field-as-network can generate creative means of accessing "the field" through specific methods.

In my study of China's national park project in chapter 1, for example, I focused particularly on accessing two nodes in the national park "network." Through online semi-

structured interviews, I accessed American and Canadian conservationists, which allowed me to explore the roles they play (and do not play) in shaping parks in China. Second, discourse analysis of publicly available Chinese central-state policy documents and posts from official WeChat channels allowed me access to government articulations of what is being "taken up" from such Western engagement, and what is being rejected or reworked. Conceptualizing the Chinese national park project as a network illuminates these two points of access as interrelated nodes. This approach highlights power relations between Western-connected conservationists and their Chinese counterparts (this comes across particularly in my discussion of diplomacy), and broadly how power relations shape the spatiality of translation.

In research for the second chapter on app-based afforestation, I explored the "node" of the app itself through autoethnography as a user. I sought access to the NGO partner organizations that implement afforestation projects on the ground through online semi-structured interviews. I again accessed the central-state, an important "node" that creates the conditions for such app-based afforestation to flourish and falter, through publicly available policy documents and WeChat channels. And to access the carbon market, a key node in driving the political ecology of afforestation, I conducted additional semi-structured interviews with U.S.-based carbon market analysts. Again, this network approach illuminated how power is generated by business relationships that consolidate capital with Ant and its affiliates, the extent to which this power relies on finance and technology, and the power relations shaping how fintech operates through state regulation.

Field-as-network, as accessed through these "nodes," necessarily centers interconnections relating to the researcher as well. In the case of national parks, connections between Western conservationists and Chinese park policy especially muddied the home-field dichotomy as I traced ideas about parks between conservationists' affective childhood experiences in places I'm familiar with and the pages of Chinese park plans. In the case of app-based afforestation, "the field" existed, in part, inside my phone; I entered this field via my home

(office/living room) and throughout my day as I logged “green activities,” joining the many other Ant Forest users in a spatial process that links and entangles us with rural afforestation sites and communities in China. This kind of approach evidences Cindi Katz’ (1994) observation that the researcher is always in the field, and in fact a part of it. By placing the researcher within field interconnections, field-as-network erodes the home-field dichotomy, makes colonial and imperial relations that may undergird research at least harder to hide, and thus offers the beginnings of a pandemic-and-politically-sensitive-era response to feminist and Indigenous critiques of “the field.”

* * * * *

In what follows, I explore several corners of this networked field. I keep in mind how global environmental challenges necessarily connect us all, and yet how approaches to them vary by particularities of place. I reflect this dualism through the focus on translation and accumulation, which both inherently hold elements of connectivity across space, and of particular “grounded” manifestations. Within the broader project of seeking ways forward on environmental issues in such a networked reality, I hope to contribute to an understanding of the implications, ecological and social, of parks and fintech trees in China.

CHAPTER ONE:

TRANSLATING PARKS:
DEFINING NATURE IN CHINA'S NATIONAL PARK PROJECT

> We must deeply cherish awe for nature, respect nature, conform to nature, protect nature, and build a home on earth in which man and nature coexist harmoniously.
>
> 我们要深怀对自然的敬畏之心，尊重自然、顺应自然、保护自然，构建人与自然和谐共生的地球家园。
>
> - Xi Jinping, President of the People's Republic of China, speaking at the UN Biodiversity Conference (COP-15), October 12, 2021

> And I would hope that a national park system in China that carries with it a great deal of patriotic and personal pride with every Chinese citizen, that that would ride with them when they're, you know, the head of engineering building a pipeline, you know, somewhere in the rest of the world. And I, I think that has been one of the things about the U.S. national park system-- that it is a nonpartisan, patriotic source of pride that every American can feel good about. And if we can get even close to that in China, that could benefit the world.
>
> - Philip Gray,[6] former United States National Park Service official (personal communication, July 27, 2021)

Xi Jinping's passion for building a "home on earth" comes as a welcome commitment to Philip Gray, many conservationists, and anyone else concerned with the future of the planet and China's significant influence on that future. Xi's mission to protect nature has blossomed in recent years and months, from his now-famous declaration in September, 2020, at the annual meeting of the United Nations General Assembly, that his nation will reach peak carbon emissions by 2030, and carbon neutrality by 2060, to China's hosting of the UN Biodiversity Conference in the southwestern city of Kunming. A key aspect of China's growing emphasis on the environment is a massive new national park system, whose construction has been gathering steam since it was first announced in 2013. The "Decision of the Central Committee of the

[6] This and all interviewees' names in this chapter are pseudonyms, to direct the focus of the analysis to the dynamics and processes that shape conservation, rather than actions of specific individuals.

Communist Party of China on Some Major Issues Concerning Comprehensively Deepening the Reform"[7] buries this announcement down in section four, clause 52: "Delimit ecological protection red lines. Unswervingly implement the main functional zone system, establish a land development and protection system, promote development in strict accordance with functional zoning, and establish a national park system." This is the humble seed that became the vision for a system that is now promised to encompass 18% of China's massive land area by 2035.[8] As of this writing, ten parks have been enrolled in the system as pilot parks, five of them have been formally established, and the project has transitioned from the "pilot" to "construction" phase, with numerous additional parks in a review and approval pipeline (fig.1).

[7] Central Committee of the CPC (*zhongguo gongchandang zhongyang weiyuanhui*). 2013. "Decision of the Central Committee of the Communist Party of China on Some Major Issues Concerning Comprehensively Deepening the Reform (*zhonggong zhongyang guanyu quanmian shenhua gaige ruogan zhongda wenti de jueding*)." November 15, 2013. http://www.gov.cn/jrzg/2013-11/15/content_2528179.htm.

[8] National Forestry and Grassland Administration, National Park Administration (*guojia linye he caoyuan ju, guojia gongyuan guanli ju*). 2020. "Overview of National Park Policy (*guojia gongyuan zhengce sulan*)." November 4, 2020. http://www.forestry.gov.cn/main/6028/20201105/094837755584323.html.

Figure 1. "China's National Park System 10 Pilots."

Clockwise from top right: Northeastern Tiger and Leopard NP (Heilongjiang and Jilin provinces), Shennongjia NP (Hubei province), Qianjiangyuan NP (Zhejiang province), Wuyi Mountains NP (Fujian province), South Mountain NP (Hunan province), Hainan Tropical Rainforest NP (Hainan province), Giant Panda NP (Shaanxi, Gansu and Sichuan provinces), Pudacuo NP (Yunnan province), Sanjiangyuan NP (Qinghai province), Qilian Mountains NP (Qinghai and Gansu provinces).

Source: https://new.qq.com/omn/20200310/20200310A0FBZ200.html

But these developments have not played out in a vacuum. Interviews with U.S. federal park officials indicate that Chinese officials at the national level began contacting their U.S. counterparts in 2014 with questions about how to build a national park system. Although engagement of Western-based conservation actors in China has declined in recent years, due at least in part to China's 2017 Foreign NGO Law and shifting international politics, both governmental and a limited number of non-governmental actors have been directly involved in work to shape and influence park policy development in China. Such activities include talks with Chinese government officials, collaborations between NGOs, academic co-authorship, participation in workshops, giving invited talks, writing reports, hosting delegations of park officials, and going on study tours to China, among others.

Amid these engagements, however, concern is also mounting about what the parks in China will mean for local residents. The park system's "Overall Plan" states that individual park plans should articulate a zoning system to spatially differentiate modes of protection and management. Residents in key protection areas should be relocated. A high level of accountability should be maintained, with strict crackdowns on criminal activities, including mineral resource extraction, illegal discharge of pollutants, and the stealing and poaching of wild animals.[9] For those concerned with impacts to local livelihoods and equity, this policy articulation is deeply worrying. Although Gray, above, points out how pride in national parks could benefit China and the world, scholars of the political ecology of conservation have chronicled the often violent consequences of protected areas for local residents and Indigenous people, with particular focus on the role that Western conservation organizations play, often unwittingly, in land and resource dispossession through this mode of "fortress conservation"

[9] National Forestry and Grassland Administration, National Park Administration (*guojia linye he caoyuan ju, guojia gongyuan guanli ju*). 2020. "Overview of National Park Policy (*guojia gongyuan zhengce sulan*)." November 4, 2020. http://www.forestry.gov.cn/main/6028/20201105/094837755584323.html.

(Brockington 2002) around the world (e.g. Peluso 1993; Brockington and Igoe 2006). Conservation in this mode comes packaged with Western ideals of "pristine" nature that construct it as separate from humans, thus necessitating removal of residents and leading to conflict over protected areas (Cronon 1996; Neumann 1998). These studies unmask conservation, revealing a powerful, if sometimes unintentional, combination of ideology and practice that plays out violently in a field of complex power relations amongst international conservationists, central state actors, government agencies at multiple levels, and local residents.

Such power relations, of course, are historically and geographically specific, and their effects contingent. In China, there does not exist the same flavor of European colonization, nor the same historical and political arrangements of indigeneity as in previously studied contexts. It is hard to imagine that definitions of nature from the West would work so hegemonically in a nation where Xi Jinping's home-grown "ecological civilization" formed the tagline for the most recent UN Biodiversity Conference. How do Western conservation actors involved in China's park project define nature and protected areas? Through what work and communication strategies are those definitions conveyed? To what extent is this national park concept being picked up in Chinese park policy, and what might this mean for equity concerns in park implementation?

This chapter addresses these questions through the concept of "translation," understanding the national park to be the object of this translation and conservation actors to be its translators. "Translation" has been transported from its linguistic and literary home into a broader realm through Science and Technology Studies (STS), where it helps to describe how knowledge circulates in a way that connects sometimes faraway places and historically distant moments (Goldman and Turner 2011). Some STS scholars, studying knowledge circulation primarily in the lab sciences, have focused on the mechanisms by which knowledge travels

fluidly. Fujimura (1992) identifies one such mechanism as a “standardized package,” a combination of theory and set of technologies that can be picked up by actors in different contexts to construct new meanings. These packagings can enable a “bandwagon” effect, whereby actors even across contexts tend to work in similar directions or toward a unified goal (Fujimura 1988). Others have shifted this focus to the flexibility, rather than standardization, of knowledge that travels easily. Star and Griesemer (1989), for example, coined “boundary objects” to describe things that have the ability to retain an essential identity when applied in varying contexts but are also flexible enough to be effectively localized. Michael Lewis (2004, 234) eloquently likens this phenomenon to the use of Western musical instruments to play Indian classical and folk music in India: “some things– when they cross cultural or geographical borders– are more or less malleable than others, and this is true of science, ecology, and conservation practices, just as it is true of musical instruments.” When ideas are malleable, however, consensus on or clarity of meaning does not necessarily result. Goldman (2011), taking these ideas beyond the laboratory and into Nairobi National Park, argues that ecological “corridors” work as boundary objects that, despite limited evidence that they actually connect landscapes in meaningful ways, have a high degree of “doability” and so result in a bandwagon effect; as a standardized package they facilitate communication across “social worlds” (Goldman 2011). This chapter further develops an analytic of “translation” through an examination of the origins, processes, outcomes and politics of the “translation” of national parks in China.

This work speaks to two fronts of geographic scholarship. First, it contributes to work on the political ecology of conservation, and particularly that which focuses on the relationship between definitions of nature and conservation policy, with special attention paid to equity implications of nature/culture binaries. While the effects of such definitions and binaries have been explored in depth, at least in certain places, I here focus on the origins of nature definitions by looking to individual “translators” who are doing this definitional work. This reveals deeply

personal roots of definitions of nature, and a strong role for affect in conservation advocacy that ultimately complicates the narrative of a Western nature/culture binary. Examining the work of "translation" also reveals this process as always and deeply political, even, or especially, when diplomatic techniques of translation attempt to render parks "depoliticized."

Second, this work addresses scholarship on processes of globalization, and in particular helps fill a gap in understanding globalization in the context of China's ascendency, including in environmental action, in the international political arena. I follow others who have opened these lines of inquiry in seeing globalization as far from monolithic (Hathaway 2013) and often rejected or reworked by its recipients (Weller 2006), and the spread of environmental concepts as non-diffusionally enacted by historically situated individuals (Rodenbiker 2021). Thus, I take "national park," as others have taken "ecology," "biodiversity," and other such seemingly universal "nature" terms, as instead multiple, fluid and emerging from and spreading in the context of particular historical conjunctures (Lewis 2004; Lowe 2013; Rodenbiker 2021). Indeed, I find the definitions of nature posited by Western-based conservation actors only turn up in the pages of Chinese park policy documents in uneven and partial ways that reflect and impact their new social and political context. In particular, I argue that Chinese policy emphases on "national nature" and on ecological protection serve, in their new context, to constitute a particular, and perhaps exclusive, public as the beneficiary of parks, and support a preexisting initiative of scientific spatial planning that suggests a new era of state territorial knowledge and control. That these elements of "nature" should be picked up and amplified, and not others, suggests distributed agency and the importance of context in the process of globalization.

* * * * *

Although China's announcement of its intention to build a national park system came in 2013, it follows a longer history of protected areas. China's first nature reserves were established in the

1950s; in the 80s, these proliferated in coverage area, type and management models, including nature reserves, scenic areas, geoparks, and forest parks, among others. In 2017, the number of protected areas nationally reached 12,000, by one count (Tang and Luan 2017). The system, however, has received criticism for unclear protection standards that deviate from international ones, and for poor management. The central national park project aims to change that.[10]

Another strand of China's national park origin story may be traced back to a point of connection with the Western conservation world, when The Nature Conservancy founded its China program in Yunnan province in 1998.[11] It was TNC's idea to introduce national parks to China; the organization orchestrated trips for officials to the U.S. and several other countries to learn about parks, resulting in Pudacuo National Park's 2004 opening in Yunnan. TNC went on to work with the provincial government to establish thirteen national parks, though in the absence of a central government park system, they were perhaps "national" only nominally.[12]

China's roadmap for the central national park system lays out goals to establish pilot parks by 2020, to improve the system by integrating parks and nature reserves by 2025, and to fully establish this "system of nature reserves with national parks as the main body," covering 18% of the country's land area, by 2035. The ten pilot parks, according to policy documents, were chosen based on three criteria: their representativeness, including their ability to meet a specific ecological protection goal and exemplification of particular ecological characteristics; their ability to serve as models for future parks, including having typical management challenges

[10] Guo, Li. 2021. "Is China Stepping up Its Nature Conservation?" *China Dialogue* (blog). October 28, 2021. https://chinadialogue.net/en/nature/is-china-stepping-up-in-nature-conservation/.

[11] In discussing TNC China's operations in China, it's important to note that the terms of their engagements changed significantly with the 2017 implementation of The Law of the PRC on Administration of Activities of Overseas Non-governmental Organizations in the Mainland of China (ONGO Law). Prior to 2017, TNC worked in China under a Memorandum directly with the Yunnan provincial government, and later under the guidance of the Yunnan Forestry Department. Beginning in 2017, their activities have been regulated at the national level, authorized to work under the guidance of the State Forestry Administration and Beijing Municipal Public Security Bureau. https://chinadevelopmentbrief.org/reports/our-registration-story-the-nature-conservancy-tnc/

[12] Woodrow Wilson Center. 2020. *Protecting China's Biodiverse Hotspots: The Birth of a National Park System*. https://www.youtube.com/watch?v=VPj4qT3KZaw.

like overlapping protected areas, multiple management agencies and fragmented ecosystems; and their doability, including adequate local government capacity, clear boundaries, and a high percent of state owned forest land. The planned process of constructing the parks includes strengthening protection of ecosystems, pursuing economic development projects in park areas, advancing national park legislation to aid reform of protected areas, and establishing a clear and hierarchical management structure. This last has included establishment of a National Park Administration as part of a broad 2018 central-state agency restructuring. The NPA now operates under a National Forestry and Grassland Administration.[13] The central government launched the national park pilot phase in 2015 and, as noted above, the first five parks were formally announced as established at the October 2021 UN 15th Conference of the Parties to the Convention on Biological Diversity. These five (Sanjiangyuan, Wuyi Mountains, Giant Panda, Northeast Tiger and Leopard, and Hainan Tropical Rainforest) cover a total area of about 230,000 square kilometers.[14] Most recently, in April 2022 the NFGA announced that a fresh batch of national parks will be established this year in key ecological protection areas including the Qinghai-Tibet Plateau, Yellow River Basin and Yangtze River Basin. The agency has selected about 50 candidate areas for national parks in this batch. They will cover about 10% of China's land area and protect over 80% of an identified list of "national key protected wild animal and plant species and habitats."[15] These recent developments show the extent to which the central government and its NFGA have taken the reins for creating a park system in

[13] National Forestry and Grassland Administration, National Park Administration (*guojia linye he caoyuan ju, guojia gongyuan guanli ju*). 2020. "Overview of National Park Policy (*guojia gongyuan zhengce sulan*)." November 4, 2020. http://www.forestry.gov.cn/main/6028/20201105/094837755584323.html.
[14] "Construction of Diverse 'National Parks' Accelerates (*duoyanghua de 'guojiagongyuan' jianshe tisu*)." 2022. National Forestry and Grassland Administration. April 12, 2022. http://www.forestry.gov.cn/main/5946/20220412/093358892191020.html.
[15] "This Year, a Batch of New National Parks Will Be Established in Key Areas Such as the Qinghai-Tibet Plateau (*jinnian jiang zai qingzang gaoyuan deng zhongdian quyu xin she yi pi guojia gongyuan*)." 2022. National Forestry and Grassland Administration. April 22, 2022. http://www.forestry.gov.cn/main/5946/20220424/100314571277054.html.

China. But, in light of TNC's early involvement, to what extent and in what ways have Western conservation actors supported or shaped this central government drive for parks?

* * * * *

From July to November 2021, I conducted online (Zoom) interviews with members of the relatively small cohort of conservationists with ties to Western-based organizations who have been directly involved with advocating for or otherwise working to shape the national park project in China. I communicated with eleven of these conservationists and conducted in-depth interviews with seven. My focus was on conservation actors working for organizations based in the U.S., as the original (self-proclaimed, anyhow) homeland of the national park, and an acknowledged leader in spreading parks elsewhere around the world, but some interviewees are also involved with organizations based in Canada and Switzerland; some also hold affiliations with organizations based in China. A small number live or have lived for an extended period in China; the majority reside in the U.S. or in Canada and have traveled to China on multiple occasions, if not quite extensively. A majority, though not all, identify as White and male.

The "translation work" these individuals have been involved with in parks in China is quite varied, as noted above. A key subset of my interview cohort, however, participated in a 2019 ten-day evaluation tour of Sanjiangyuan National Park in Qinghai province, organized by the Chicago-based Paulson Institute and at the invitation of the Chinese central government. Other interviewees' primary modes of engagement have been related to advocacy for wilderness protection in China, academic and publishing collaborations, or involvement in community-based conservation projects.

This cast of “translators” remains limited in some important ways. First, I in no way imply that the only, or the most important, “translators” are U.S.-tied. On the contrary, interviews indicate that Chinese central government officials have sought advice on their park system from officials in a number of other countries, “Western” and not, never mind other non-governmental actors who have undoubtedly played roles. I have focused on U.S.-tied and “Western” actors (recognizing that each holds a multiplicity of identities and backgrounds that influence their “translation” work) in part to respond to and build upon scholarship that identifies “Western” definitions of nature and Western or international conservation organizations as influential (and sometimes problematic) in national park projects. Second, this cast does not include the many government officials, policymakers and scholars in China who play an intimate role in this “translation.” While I heard much about some of them from interviewees and have read many of their written policies and publications, not speaking with them remained primarily a limitation of international politics and positionality-- in 2021, political sensitivities all but precluded American researchers from interviewing high-ranking officials and academics, especially over the internet. My particular position both facilitated access to those I did speak with and posed limitations elsewhere.

The other significant data source for this project is the contemporary “archive” of central government policy documents on the national park project. I focus on documents generated since the 2013 announcement of the project, including planning documents and “guiding opinions,” primarily published by the National Development and Reform Commission (NDRC), an agency under the State Council which worked on national parks in the system’s earlier years of development, and by the National Forestry and Grassland Administration (NFGA), which, since government structural reforms in 2018, now houses a National Park Administration (NPA) responsible for the growing system. I also include in this archive several important government speeches on the topic, as well as park plans for a number of the individual pilot parks. Finally, I include the prolific postings from official WeChat channels on the park project, including from

accounts like ChinaNPPA, the official central government account for stories on national parks and protected areas, and zhongguolinyewang, the NFGA channel. Together, these sources present rich materials from which to understand official central government discourse on national parks.

Intimate Nature

“Well, um,” Craig Anderson begins, “it wasn't born whole within me. It was a feeling that I nurtured all my life since I was a little boy.” Anderson is the President of a U.S.-based NGO with a mission to promote wilderness protection. In China, he was involved in publishing the first peer-reviewed journal issue on wilderness in China, has advocated for the World Wilderness Congress to meet in China, and was involved in a spatial analysis study, based at a Chinese university, to identify areas in the country that may qualify as wilderness, among other work. One of his main interests is in incorporating the concept of wilderness into Xi Jinping’s touted “ecological civilization.” The NGO’s China-based representative Liu Yuxi explained that they are advocating for wilderness to be incorporated into the national park project and connected protected area system in China. In my conversation with Anderson, I had asked how he came to hold the perspective he does on wilderness:

> First thing I can remember is how cool nature is. Now I remember, in my, one of my first memories, is about a year and a half or two years, looking out the screen door on a very hot Memphis summer day and watching two woodpeckers. And the next year they were there again and I remember thinking, I wonder if it's the same ones.
>
> (personal communication, Aug. 3, 2021)

When asked about the main importance of protected areas, interviewees replied in various, but generally unsurprising ways-- they talked about ecological services, opportunities for recreation

and other public benefits, protection of exemplary resources, and about beauty and remoteness. But when asked how they arrived at these ideas about nature, they often told stories. This, then, is where translation begins, with the personal and deeply intimate as the seeds of passion for and particular understandings of nature. As with Anderson's story above, some were rooted in childhood, or else in a kind of delayed awakening, as with Liu Yuxi, who told me because she grew up in a city, she and her generation were "very distant from wild nature," and "lost this identity or lost this part"; only when she began working with a nature photography organization did she decide conservation was her path (personal communication, Aug. 11, 2021). Other stories of intimate nature look beyond the self. Philip Gray, a former U.S. NPS administrator, remembers being in Katmai National Park in Alaska, on a bridge over the Brooks River, where grizzly bears often fish:

> there's families… looking down at grizzly bears and everybody's looking at the grizzly bears and I'm looking at the families. I'm like, I'm watching how they respond to this and what are they saying to each other, and how are they, they're sort of bonding with this experience, with each other and, and what, what-- how, how those memories are becoming embedded in them, and that they recognize this is not a zoo, this is, you know, they're not watching it on television, they're *there*, and that there, there's a hazard to it, there's, there's even a danger aspect to it that really heightens the senses, and I think that's what I really feel is incredibly important.
>
> (personal communication, July 27, 2021)

Gray here highlights not just the personal, but the affective and embodied aspects of nature experience as crucial to his understanding of national parks' importance. As a childhood observation of woodpeckers and an adulthood encounter with nature photography stuck with some, Gray expects the memory of danger and being with one's family to stick with park visitors; indeed, the experience of watching these visitors' intimate encounter with nature has stuck with *him*.

What emerges here is the personal and intimate as central to how these translators understand nature. Above all, personal nature stories convey a connection, a relationship of

intimacy, between people and nature, and this connection informs conservationists' advocacy. As Anderson articulated to me, "Relationship to me is the most important concept, issue, quality, idea that we can work on if we're, if we're going to dig ourselves out of this environmental mess that we're in" (personal communication, Aug. 3, 2021). The other thing that emerges is how this kind of intimate relationship is refracted through the form of the personal narrative. Sociologists have defined narrative as something that "can operate analytically to bridge the individual and the social" (Irvine et al. 2019, 6). This "bridge" is the main concern of Maynes et al. (2019), who argue that narratives show how individuals construct themselves through historically specific social and cultural dynamics. As they note, this understanding follows Foucault to see stories as governed by discourse. Bruner (1991) goes further with the individual-society relationship to argue that narratives in fact constitute reality. He writes that "narratives, then, are a version of reality whose acceptability is governed by convention and 'narrative necessity'" (Bruner 1991, 4). Intimate nature narratives are surely guided by such conventions, and indeed stories such as Anderson's work to construct the self as a "nature person." But examining narratives from people who have made protected area advocacy their life's work suggests that the narratives, through constructing the self, also produce another, and farther reaching, reality, an institutional one.

Institutional Nature: Political Affect

Locating the start of the national park "translation" process within personal, affective experiences of individuals complicates the notion that an ideological nature/culture binary is at the root of hegemonic, Western, dispossessing practices of conservation. The conservation practices that Western-connected actors advocate for in China *do* reflect elements of a binary,

but, paradoxically, that advocacy does not stem from a belief that nature and culture ought to be separate. Instead, as the stories of “intimate nature” above illustrate, interviewees’ motivation to engage in conservation, at the institutional scale, originates in affective experiences. Scholars of feminist political ecology increasingly draw attention to the role of affect in conflicts over land and resources, arguing that, as Sultana (2011) articulates, considering the role of emotion enables better explanations of why people engage in resource struggles the way they do, and to see such conflicts as “emotive realities” (ibid., 163). Affect helps explain why Western-connected conservationists become involved in their advocacy work, though the paradox of affective “intimate nature” experiences driving pursuit of conservation projects, or “institutional nature,” does generate some tensions.

Anderson, for one, and others I spoke to who also particularly emphasized relationality and intimacy in human-nature relationships, dislikes institutions and the process of institutionalization (“terrible word”). A certain tension runs through some of these conversations between the intimate and a resultant imperative to create the conditions for more relationality through advocacy for protected areas. Anderson’s discomfort, for example, is palpable: “I had a vision a long time ago, saying okay, I don't like institutions. I prefer a different model of development, but institutions are important, so we need to get wilderness institutionalized.” Anderson and his collaborators went on to write the IUCN definition for wilderness, build management and legal guidelines, and establish a journal focused on wilderness issues around the world. He explains that this distasteful, if impressive, institutionalization is necessary to ensure longevity of wilderness areas: “that's an important core concept in wilderness, that you can't just depend on people's good nature or the fact that they understand wilderness” (personal communication, Aug. 3, 2021).

This tension between nature as intimate and nature as institutional protected areas connects to a second tension, between expressed desire to respect local and Indigenous land and resource access and sovereignty, and hesitation to incorporate such respect into

conservation policy and practice. The conservationists I spoke with unanimously advocate for residents in parks in China to be treated equitably. One stated, “We fully subscribe to UNDRIP [UN Declaration on the Rights of Indigenous Peoples], and that means free, and free and prior informed consent.” Another, who participated in the Sanjiangyuan park evaluation, where local residents are primarily Tibetan pastoralists, resisted claims that herding is degrading the grasslands, and advocated for taking down fencing that had been earlier constructed in the park, to allow wildlife to roam and herders to pasture and move yaks as they have historically. For the Northeast Tiger and Leopard National Park, he similarly feels that residents should remain, and managers should instead seek creative ways to reduce human-wildlife conflict. “We try to point out to them,” he said, “don't do what we did.” Another articulated, “to me the model of national park that is being the most successful is the one that embraces the local stewardship and which may include some practices of extraction by Indigenous people.”

And yet interviewees also expressed anxiety about the impacts of such practices, and the need for limits on them. One explained, “the difference is that if you're, if you're establishing it as a protected area national park, that that activity has to be viewed as a sustainable activity… if you're going to have a park and protected area, you have to establish some limitations.” Another lamented, “It is not easy, because people evolve. You say, ‘it's fine, you can keep this community there.’ Well, pretty soon that little dirt road to the community becomes a paved road…. As one of the favorite concepts about wilderness management is, ‘a path, by slow and sure degrees, becomes a highway.’” Another said simply, “there always needs some balance.”

All of these conservation translators maintained the essential importance of bounded protected areas managed by some external authority, or according to external standards. Some see enforced boundaries as necessary for conserving species in the face of “bad actors.” One acknowledged the history of forced displacement foundational to the U.S. national parks, then in the next sentence argued, “But it's important to understand that we established a boundary for Yellowstone National Park in 1872, and people did not respect it. People came in and

decimated the bison herds there, so that we had to import bison from elsewhere for there to be bison in Yellowstone." Another similarly notes that "the infiltration of, of poaching networks and criminal syndicates, corrupt officials, has made the counter-poaching, the protection of wilderness and wildlife, very difficult."

Others maintain that the main focus of protected areas should be on management for conservation, and separate good and bad actors along an axis of their commitment to this purpose. One stated that Indigenous groups tend to use land sustainably, but "to effectively conserve that land, we sometimes have to say we need to stop and look at how this is being managed." Another identified his central responsibility as a conservationist as attention to management for environmental protection, and said he seeks to work in collaboration with Indigenous groups who are similarly committed to that goal, but has no interest in working with groups that are not. This strict focus on conservation management downgrades Indigenous sovereignty in the order of priorities for the lands in question. The fears of ecological impacts from residents and commitment to enforced borders and external (non-local) authority described above similarly support institutional conservation that evidences a nature/culture binary, even while the motivation for this form of environmental action stems from affective experiences of intimate nature.

Where this kind of 'status quo' is maintained, Western conservationists have few options for achieving equity or justice in conservation practice. Many rest their hopes for such an integration on protected areas' promise for local economic development, and on good management's ability to provide alternative livelihoods. Some talked about ecotourism or pointed enthusiastically to a program in China's Sanjiangyuan National Park called One Household One Ranger (*yihu yigang*), which offers one park ranger job to each household in the park district. Other interviewees, however, pointed to the precarity, especially in the new pandemic era, that reliance on ecotourism produces, and to concerns that rangers in the One Household One Ranger program, who sometimes accept the employment on conditions of

reducing their herd numbers or otherwise altering their presumed impact, often move to towns and spend relatively little time in the areas they are meant to patrol.

This is not to suggest that conservationists' care for local and Indigenous rights, claims and livelihoods in China and elsewhere is disingenuous, and that hidden nefarious aims instead are at work, but rather that very genuine affect at the intimate level can propel unjust conservation at the institutional level. In this sense, analyses that see a nature/culture binary at work in Western conservation practices are not misguided, but attention to the role of affect is needed to more fully explain how such practices emerge.

So, too, does the interaction between affect and politics deserve attention. Andrea Nightingale (2013) insists on the political aspect of affect when she writes that "emotions are relational products that flow within interactions to produce particular kinds of socionatures" (ibid., 2363). This suggests both that emotions arise from political relations and that emotions do their work in a terrain pre-populated with politics. For Western-connected conservationists working to shape park policy in China, part of what's pre-populated is their position of relative influence. They work for the U.S. National Park Service, or major international conservation organizations, or have contacts in these circles. They have found themselves on conference calls with park policymakers in Beijing, have talked with them at conferences, have produced a report on Sanjiangyuan National Park specifically for such an audience. Although not unlimited, this kind of access allows the conservationists I spoke with, and their affective experiences, to shape park policy in China in a way others cannot. As Michael Lewis (2004, 13) has asked, in relation to U.S. ecologists at work in India, "Whose version of conservation is being promoted by the science of ecology?" Although much work on affect in feminist political ecology examines how in resource struggles affect can work against hegemonic power, Lewis' comment points to what Marien González-Hidalgo has termed emotion's "ambivalent political work" (2021)-- it can equally work to reproduce hegemonic power relations, and here, hegemonic conservation. If "translation's" first phase takes place in the intimate and affective, then its next phase, scaling

up to the institutional, is refracted through, and enabled by, political relations. Within the terrain of power relations that allow certain conservation "translators" influence, however, how exactly do they exert that influence, and how complete is the hegemony they enjoy in the context of working with counterparts in China, where a measure of diplomacy is required?

Diplomatic Translation

Michael Evans, who works in the International Affairs office at the U.S. National Park Service, tells me he has a great photo of Deng Xiaoping standing in front of the Lincoln Memorial with a former Director of the NPS and a park ranger. This is where Evans begins the story of U.S.-China cooperation over national parks-- in January 1979, with Deng's historic visit to Washington. He tells a tale of delegations from U.S. parks visiting protected areas in China, and vice versa; of reviewing nominations for Chinese sites to join the UNESCO World Heritage List; of developing sister park relationships; and finally, in 2014, after China had formally articulated an intention to build a national park system, of being contacted through the Chinese embassy in Washington by China's National Development and Reform Commission (NDRC) with some questions about how, exactly, to do that.

For Evans, parks have always been about diplomacy, from Deng Xiaoping in front of Abe Lincoln onward. When I suggested to him that some might think otherwise, might actually think that protected areas should serve nature first, rather than acting as a tool of politics, he reacted with surprise. "I think we feel proud," he said, "that national parks, nature conservation is an important tool in the skill set of the U.S. in conducting foreign policy" (personal communication, Sept. 23, 2021). Indeed, Evans came to international relations first, and conservation later. With degrees in Political Science and Russian Area Studies, he thought he

might work for the Department of State or CIA, but wound up at an NGO supporting the EPA's U.S.-Soviet Environment Agreement, and from there held positions at the Department of Interior and Department of State, working on international environmental commissions and agreements. He's been working on the Asia-Pacific portfolio at the NPS International Affairs Office now for nearly two decades.

Evans describes the mission of his office, or what I might understand as his translation practice, as to "share lessons learned and bring back best practices from around the world that we find from our colleagues." For Evans' involvement with China's national park system, this has included answering those questions from the NDRC, identifying park experts in other countries who could write case studies on their park systems for the NDRC, hosting a series of delegations of PRC officials to the U.S. to study the park system, participating in workshops in Beijing, building relationships with academic scholars in China working on conservation and protected area management, and participating in the Sanjiangyuan National Park evaluation tour.

The relationship Evans enacts between environmental conservation and diplomacy has not gone unnoticed in International Relations scholarship. Research in this area has conceptualized conservation diplomacy as something that happens between states, examining, for example, broad historical trends in international environmental treaties (e.g. Busby 2015) and how international environmental cooperation, such as around UNESCO's World Heritage program, drives conservation projects globally (Ishwaran 2004). Others, instead of seeing how diplomacy can benefit conservation, have explored how conservation can benefit international diplomacy. Buckingham et al. (2013), in the case of China, have argued that "panda diplomacy," China's practice of gifting and loaning pandas to other nations, works as a type of soft, "cuddly" power. This makes panda conservation itself always political– "the outcome of a complex, dynamic interplay among politics, markets and conservation science" (Buckingham et al. 2013, 262). Saari (2020) has gone further to see national parks as not only always political, but in fact

as historically contingent cultural constructs. National parks as an American invention, Saari argues, were constructed as such through the NPS' international work in cooperation with other countries during the Cold War years, when the national park supported American projects of cultural diplomacy and modernization. This is how parks became "Americanized" even while other traditions and practices of protected areas preexisted it in locations around the world. As historically contingent, the national park, in its transnational meanderings, is, for Saari, necessarily shifting and unstable: "the national park idea was pragmatic and flexible, reflecting the relationship between the nation and nature, and always changing to fit the times" (Saari 2020, 3). This view suggests that the national park can work, in processes of translation, as one of Star and Griesemer's (1989) "boundary objects," concepts that shift, here to serve particular diplomatic objectives, while also maintaining (or perhaps solidifying) a common recognizability.

But how does this boundary object flexibility in national park translation actually happen? While defining conservation diplomacy as a state-to-state activity allows for important insights into the political and historically contingent nature of international conservation work, I argue that examining the work of individuals reveals how this flexibility in fact happens– through what I'll call "speech strategies." These are minute aspects of individuals' discursive practices, which they employ in acts of a kind of micro-diplomacy that happens within the structures of, but also ranges far beyond, the traditional realm of state-to-state diplomacy. Within the state apparatus, Evans' gracious use of "colleague" above, for example, is indicative of *how* he approaches his work. He consistently referred to officials, scholars, and anyone else he has worked with in China in this way. Evans also stressed the importance of understanding difference, describing the success of his work by saying, "there is much better understanding of how each system operates within its culture and legal requirements, that there are different laws, there's different culture, there's different history…. you can never stop understanding, never stop studying how does something work" (personal communication, Sept. 23, 2021). This kind of emphasis on understanding difference comes with an often deep expression of humility. Evans commented,

“no one from anywhere else can fully understand how a national park works and collaborates with its local community, supports its local community, without being there on the ground for quite a long time.” The impetus for such delicate “speech strategies” around understanding difference and expressing humility is clear-- as Evans himself pointed out, when international relationships turn sour, sometimes parks are the only things both sides can agree to put on an agenda. Whereas Saari (2020) describes American national parks in the Cold War years as an “export,” the bilateral relationship Evans navigates today requires a somewhat more collaborative approach. And while speech strategies could be read as efforts to “depoliticize” parks, they in fact reveal how deeply political power relations circumscribe the way translators talk about protected areas. The closest any interviewee came to commenting on something politically sensitive was to remark, “the Chinese mode of government-- it is an authoritarian system. This is not a criticism; it's an observation… it works for China.” This shows how a kind of radical non judgementalism governs park talk, rendering some things, particularly China’s system of governance and how that may impact park management, off limits. In this way, despite its seeming aim to “depoliticize,” “speech strategies” reveal parks and their translation, as with Buckingham et al.’s (2013) “panda diplomacy,” to be deeply political.

Not all conservation actors are government-tied, however, and indeed such “speech strategies” that do this diplomatic work of flexing the national park concept occur beyond formal delegations and embassy-assisted phone calls. Anderson, for example, of the wilderness advocacy NGO, explained his organization’s mode of operation as “We empower other people.” In my conversation with him, he pointed me to articles written by his Chinese collaborators, although he has written many himself, and highlighted individuals in China as being responsible for his organization’s and its mission’s success-- one Tsinghua University scholar he described as “*pivotal* in this movement.” When asked about how his work has been successful, Anderson’s reply began, “I think I’ve been successful-- and I say ‘I’—*we*, you know, it’s a small team” (personal communication, Aug. 3, 2021). This is graciousness, to be sure, but as a

“speech strategy” it is also a kind of decentering and may serve a political and diplomatic purpose of positioning himself and his organization for successful “translation.” In listing his several titles and affiliations, Anderson assured me, “I have zero time for ego,” but explained that his affiliations are strategic; he is President of a foundation in the global South, for example, so that he’s “not just another American.” This suggests that Anderson’s decentering “speech strategy” is part of a larger effort to take his identity into account, mitigate how others may see him, and thus diplomatically maximize his chances of translation success.

While Anderson uses these “speech strategies” to try to flexibly integrate the wilderness concept into Xi Jinping’s “ecological civilization,” Eric Jenkins, a Canadian conservationist who is centrally involved in multiple major international conservation initiatives, actually sees wilderness itself as an innately Chinese, and indeed innately human, concept. “There's a wonderful poem by the Kangxi Emperor,” Jenkins told me, “about riding off into the wilderness, and it looks like John Muir wrote it. It was written in 1640” (personal communication, Sept. 29, 2021). Jenkins, who has collaborated with scholars at both the Chinese Academy of Sciences and at the Tsinghua University Institute of Landscape Architecture on publications on Chinese national parks, is fascinated by similarities in historical understandings of nature that have arisen from cultures around the world. His advocacy for conservation in China thus takes the discursive form of encouraging a reconnection with an ancient Chinese respect for nature. Nothing, in fact, makes Jenkins more incensed than Western conservationists who “assume that they've come to shine their brilliant Western light on the darkness of these other cultures” (personal communication, Aug. 25, 2021), or academics who presume a monolithic Western environmentalization of Global South places and forget deep roots of respect for and protection of nature set in those places themselves. Jenkins’ point that the role of non-Western definitions of nature deeply shape conservation in China today is well taken (indeed, above I have pointed to the prevalence of “eco-civilization” as signifying a state-level effort at domestic environmentalism, and below, I’ll draw out some characteristics of this distinctly domestic

conservation); and Jenkins' effort to decenter “the West” in analyses of environmental thought and action in China is also important, given what Jenkins describes as a “*very* arrogant civilization in the West” (personal communication, Aug. 25, 2021). What interests me here, however, is the work that Jenkins' advocacy of parks and wilderness as distinctly *Chinese* does. This “speech strategy,” positioning parks and wilderness as Chinese and decentering the West, as with other diplomatic speech strategies, gets things done in the current historical conjuncture. When asked how he has maintained collaborations in China while others have failed to do so, Jenkins said straightforwardly, “because I’m interested in China's success. You want to work with any other culture, you have to be genuinely interested in them. And in my view, people can smell that on you.” What’s remarkable about Jenkins' version of diplomacy here is how completely it upends the “export” model of understanding translation. Here, instead of a Western conservationist advocating for parks as a Western approach, as the “export” model assumes, and as, to a partial extent, people like Evans still do, a Western conservationist instead works to articulate and elevate a Chinese concept of conservation. Such articulations are of course necessarily refracted through Jenkins' own position as a Canadian conservationist, resulting in a kind of inverted or recirculating translation.

This is no “monolithic globalization,” but neither is this flavor of translation devoid of “Western influence.” Jenkins' work, alongside other Western translators’, remains intentional and persistent. Always political and historically contingent, these translators’ “national parks” flexibly respond to a need for a decentered Western influence. A broadened understanding of “diplomacy” allows us to site (and sight) this work in the “speech strategies” of individuals within and beyond state-to-state activities to recognize translation of national parks in China as always political and anything but a one-way street.

Parks in China

How are these intimate and troublesomely institutional definitions of nature, communicated by diplomatic speech strategies, picked up in China? Many interviewees expressed a kind of "black box" with regard to this question-- they had little sense of how their work and messages have been received by counterparts in China. Many also identified COVID-19 and a declining U.S.-China relationship as factors that have recently reduced their communications with Chinese partners, making it harder to assess what is "sticking" in China. There is, indeed, no way to establish firm cause-and-effect relationships in this kind of messy translation process; such a simple linearity is unlikely to meaningfully describe the relationship in any case. What is possible is to examine the discourse on parks emerging from central government agencies in China, listening for echoes of the interviewed translators' work, silences, emphases and lack thereof.

Some aspects of central government policy discourse work to reaffirm the national park "standardized package." To recall, Fujimura (1992) defines a standardized package as an easily transportable combination of theory and practice. The park system "Overall Plan" defines national parks as "specific terrestrial or marine areas approved by the state to be established and managed, with clear boundaries, with the main purpose of protecting a large area of natural ecosystems representative of the country, and achieving scientific protection and rational use of natural resources."[16] This appears to adhere quite closely to definitions of institutionalized nature that Western-connected conservationists articulated, and indeed, Chinese government documents list specific lessons learned from foreign parks, among them: national parks are one of the most important types of nature reserves; the purpose of parks is to protect ecosystem integrity; parks also provide well-being benefits, opportunities for scientific research, and

[16] Central Committee of the CCP, State Council. 2017. "The General Office of the Central Committee of the Communist Party of China and the General Office of the State Council Issued the 'Overall Plan for Establishing the National Park System' (*zhonggong zhongyang bangongting guowuyuan bangongting yinfa 'jianli guojia gongyuan tizhi zongti fangan'*)." National Forestry and Grassland Administration. http://www.gov.cn/zhengce/2017-09/26/content_5227713.htm.

recreation; national parks are run by the central state under a unified management agency.[17] Through these articulations, government agencies take up and reaffirm a familiar standardized package understanding of national parks as bounded areas for protection, as well as practices such as oversight by a centralized agency and opportunities for research, public education and recreation. But this is not a simple case of Chinese government actors boarding a "bandwagon" (Fujimura 1988) just because national parks are in vogue. While this package may seem fairly standardized, there are certain aspects of the package that become especially emphasized, and with particular effects. One such emphasis is on what I call "national nature."

National Nature, National Publics

Recent media on the national park project in China has a new format: camera trap images. From social media to state-sponsored television, infrared and critter cam shots proliferate, clamoring for public attention. A CCTV news segment flipped through ghostly shots of snow leopards, eyes glowing against the night lighting (fig.2). At China's 2019 Two Sessions meeting, a National People's Congress representative from Qinghai reportedly delighted Xi Jinping with snaps of snow leopards and Chinese mountain cats from an area in his province slated to be included in a national park, attracting public attention.[18] "Rare!" a 2020 news headline shouts,

[17] National Forestry and Grassland Administration, National Park Administration (*guojia linye he caoyuan ju, guojia gongyuan guanli ju*). 2020. "Overview of National Park Policy (*guojia gongyuan zhengce sulan*)." November 4, 2020. http://www.forestry.gov.cn/main/6028/20201105/094837755584323.html.
[18] Yang, Wanli. 2021. "Interest in Endangered Wild Cats Surges." *China Daily*, March 18, 2021. http://www.chinadaily.com.cn/a/202103/18/WS6052a9e5a31024ad0baafe2c_1.html.

"Four Snow Leopards in the Same Frame!"[19] Another, from August 2021, was already over it: "More Wild Animals Captured on Cameras in SW China."[20]

Figure 2. Still frame from a CCTV program on snow leopard recovery.

Source:https://news.cctv.com/2021/10/09/ARTI7bx9Mt5CdS8IHfjaZft4211009.shtml?spm=C94212.P4YnMod9m2uD.ENPMkWvfnaiV.94

I point to these captivating images as both produced by and productive of a kind of "national nature." After "ecological protection" as the first goal of parks, "national representativeness" (*guojia daibiaoxing*) is often listed as a close second.[21] One policy calls on park planners to

> "Adhere to national representativeness. National parks not only have extremely important natural ecosystems, but also have unique natural landscapes and rich

[19] Zhang, Gailun. 2020. "Rare! Four Snow Leopards in the Same Frame! (*Hanjian! Sizhi Xuebao Tong Kuang!*)." *Tencent News (Tengxun Xinwen)*, March 2, 2020. https://new.qq.com/omn/20200302/20200302A0OC9A00.html.
[20] *CGTN*. 2021. "More Wild Animals Captured on Cameras in SW China," August 30, 2021. https://news.cgtn.com/news/2021-08-30/More-wild-animals-captured-on-cameras-in-SW-China-139e0pM10FW/index.html.
[21] E.g. National Forestry and Grassland Administration, National Park Administration (*guojia linye he caoyuan ju, guojia gongyuan guanli ju*). 2020. "Overview of National Park Policy (*guojia gongyuan zhengce sulan*)." November 4, 2020. http://www.forestry.gov.cn/main/6028/20201105/094837755584323.html.

> scientific connotations, and have a high degree of national recognition. National parks are dominated by national interests, adhere to state ownership, have national symbols, represent the image of the country, and demonstrate Chinese civilization."[22]

This is reflected in individual park plans, such as the Sanjiangyuan National Park plan's declaration, "The rivers are the blood of the earth, the Yangtze River and the Yellow River are the mother rivers of the Chinese nation, and gave birth to the brilliant Chinese civilization."[23] Although certainly far from the first time the Yangtze or Yellow have been considered national treasures, this statement makes a strong national claim in particular to their source (*Sanjiangyuan* meaning "three rivers' source") in an area in Qinghai province that is relatively remote from the seat of power in Beijing, home to significant populations of Tibetans, and the site of historical and ongoing struggles over Tibetan territorial sovereignty. "National nature" discourse, whether snow leopard infrared photos or poetic descriptions of the blood of the earth, serves to ideologically draw Sanjiangyuan into a tighter national embrace. How important is this nationalizing nature project, both the ideological and material aspects of it? In a June, 2021 visit to Qinghai, Xi Jinping gave a speech emphasizing that "protecting Qinghai's ecological environment is *guozhidazhe*."[24] This term has been perhaps most accurately, but still deeply unsatisfyingly, translated as "matter of national importance." Analysts of Xi Jinping speeches have identified it as a term that has become prominent since 2020 and that implies consolidation of Party power and loyalty to Xi himself. Its origins include a term for "major national matters" (*guozhidashi*) and a concept of a "great man of chivalry" (*xiazhidazhe*),

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[22] Central Committee of the CCP, State Council. 2017. "The General Office of the Central Committee of the Communist Party of China and the General Office of the State Council Issued the 'Overall Plan for Establishing the National Park System' (*zhonggong zhongyang bangongting guowuyuan bangongting yinfa 'jianli guojia gongyuan tizhi zongti fangan'*)." National Forestry and Grassland Administration. http://www.gov.cn/zhengce/2017-09/26/content_5227713.htm.

[23] National Development and Reform Commission. 2018. "Overall Plan for Sanjiangyuan National Park" ("*sanjiangyuan guojia gongyuan zongti guihua*"). https://www.ndrc.gov.cn/xxgk/zcfb/ghwb/201801/W020190905497947574114.pdf.

[24] China Green Times (*zhongguo lvse shibao*). 2021. "'Remember the Earnest Entrustment, Effectively Protect the Third Pole's Ecology (*laoji yinyin zhutuo qieshi baohu hao diqiu disanji shengtai*),"June 16, 2021. http://www.forestry.gov.cn/main/5946/20210626/095435904529808.html.

suggesting that the term is as much about a figure or identity as it is about a matter.[25] By invoking *guozhidazhe*, in other words, Xi assigns the ecological protection project in Qinghai, including the national park, a status of national identity exalted enough to enjoy a direct, if vague, relationship to his own position of power. Parks, for Xi, are about the nation.

National nature, however, not only assigns parks a national status, but importantly also offers them to a particularly constituted public to own and enjoy. National parks, one document outlines, should:

> Adhere to the public good of the whole people (*quanmin gongyi*). National parks insist on sharing by the whole people, focusing on improving the service functions of the ecosystem, carrying out natural environmental education, and providing the public with opportunities to get close to nature, experience nature, understand nature, and serve as an opportunity for public well-being. Encourage public participation, mobilize the enthusiasm of the whole people, stimulate awareness of nature protection, and enhance national pride.[26]

I do not intend to suggest here that these public benefits are false or valueless, but rather that the "whole people" meant to enjoy them is a particular people, and may not be entirely whole. Stemming from Dewey's (1927) work on the formation of public opinion in democracy and Althusser's (1984) theorization that ideology interpellates or hails the subject, a line of social scientists have argued that the public, instead of a pre-given entity, is "called into existence in multiple forms and spaces" (Barry 2013, 97). This formulation calls attention to the specific techniques that assemble and constitute the public. Further, such "public-making" practices typically disregard any preexisting social groupings or collectivities (ibid.). I want to suggest that "national nature" discourse operates as such a public-constituting technique. Here "whole

[25] Bishop, Bill. 2021. "*Guozhidazhe* Matter(s) of National Importance; Real Estate; Biden-Xi." *Sinocism* (blog). November 9, 2021. https://sinocism.com/p/-matters-of-national-importance-real.

[26] Central Committee of the CCP, State Council. 2017. "The General Office of the Central Committee of the Communist Party of China and the General Office of the State Council Issued the 'Overall Plan for Establishing the National Park System' (*zhonggong zhongyang bangongting guowuyuan bangongting yinfa 'jianli guojia gongyuan tizhi zongti fangan'*)." National Forestry and Grassland Administration. http://www.gov.cn/zhengce/2017-09/26/content_5227713.htm.

people" sounds inclusive, but are residents who live on park land, for example, truly imagined as among the recipients of "opportunities to get close to nature"? It seems this "whole people" primarily hails urban residents who lack such opportunities-- as Cronon quips of American wilderness as a place for wealthy urbanites, "Country people generally know far too much about working the land to regard unworked land as their ideal" (1996, 15).

What, then, of those who fall outside the net of this constituted public? In the case of Sanjiangyuan residents, largely Tibetan pastoralists, the park plan explains that their lives need to both adhere to ecological protection rules and meet a need to "display nomadic culture and pass down history."[27] Some of these residents' cultural "genes" (*jiyin*), explains the park plan, support ecological protection, and it is these ones that should be "unearthed" (*wajue*) to be passed down and developed. Some residents will be relocated through incentivized urban migration programs; those who choose to stay will become responsible for the passing down of this culture. This kind of cherry-picking of culture, besides carrying a whiff of cultural eugenics, pretends to respect local people by highlighting (and, it seems likely, commercializing) certain beliefs and practices, but reduces self-determination of inheritance. What gets passed down is no longer up to an individual or a community, but rather the central state. And what gets passed down is no longer private, but rather the inheritance of the nation. Culture here is simplified, environmentally sanitized, then nationalized. Thus "national nature" nationalizes nature through a discourse of national representativeness, its beneficiaries through an exclusively constituted public, and cultural inheritance through a process of controlled selection and display. It may seem obvious that a "national park" makes parks national, but attention to the specific discourses that achieve this point to the geographically and socially specific effects in China of emphasizing this aspect of the "standardized package" in translation. The effects of "national

[27] National Development and Reform Commission. 2018. "Overall Plan for Sanjiangyuan National Park" ("*sanjiangyuan guojia gongyuan zongti guihua*"). https://www.ndrc.gov.cn/xxgk/zcfb/ghwb/201801/W020190905497947574114.pdf.

nature" in Sanjiangyuan, for example, cannot play out separate from Tibetan sovereignty struggles, and such discourses necessarily have political ramifications. "National nature" is hence one more iteration of the "ecological nationalisms" Yeh (2009a) has observed at work in Tibet that erase local historical agency. While parks may nationalize nature everywhere they are constructed, that nationalization will touch down differently in each place. In this way, "national nature" demonstrates that translation takes place not in a vacuum but in political articulation with historical specificity. This articulation, however, is not only an ideological nationalization, but comes with a very material aspect as well, enacted through spatial planning.

Ecological Prioritization, Spatial Planning

A second aspect of the standardized package that emerges as heavily emphasized in how "national park" is taken up in Chinese policy documents is the prioritization of ecological protection. A 2019 set of "Guiding Opinions" on parks instructed, "Implement the most stringent ecological and environmental protection system" and "adhere to strict protection."[28] Another document directs, "insist on ecological protection first."[29] In a 2021 press conference, a National Forestry and Grassland Administration official declared, "we must adhere to the national park concept of ecological protection first."[30] Some have criticized previous protected area efforts in

[28] *Xinhua News (*xinhua she*).* 2019. "The General Office of the Central Committee of the Communist Party of China and the General Office of the State Council Issued the 'Guiding Opinions on Establishing a Natural Reserve System with National Parks as the Main Body' (*zhonggong zhongyang bangongting guowuyuan bangongting yinfa 'guanyu jianli yi guojia gongyuan wei zhuti de ziran baohudi tixi de zhidao yijian'*)," June 26, 2019. http://www.gov.cn/zhengce/2019-06/26/content_5403497.htm.

[29] Central Committee of the CCP, State Council. 2017. "The General Office of the Central Committee of the Communist Party of China and the General Office of the State Council Issued the 'Overall Plan for Establishing the National Park System' (*zhonggong zhongyang bangongting guowuyuan bangongting yinfa 'jianli guojia gongyuan tizhi zongti fangan'*)." National Forestry and Grassland Administration. http://www.gov.cn/zhengce/2017-09/26/content_5227713.htm.

[30] *National Forestry and Grassland Administration WeChat Public Account (*guojia linye he caoyuan ju weixin gongzhonghao). 2021. "The State Council Information Office Held a Press Conference on the '14th Five-Year Plan' Forestry and Grassland Protection and Development Plan (*guowuyuan xinwenban jiu 'shisiwu' linye caoyuan baohu*

China as privileging tourism and monetary gain over all else (e.g. Zinda 2014), and this recent emphasis on ecological prioritization around parks has inspired equal parts celebration and skepticism on the part of international conservation media. But whether or not ecological protection plays out as promised in the actual practice of park management, I argue that the discourse of ecological prioritization has its own, separate effect-- supporting a massive and ongoing project of spatial-scientific planning in China that promises to know, shape and control territory in new ways.

China's 14th Five-Year Plan promises increased emphasis on spatial planning, including through "ecological functional zones" (*shengtai gongneng qu*) and "ecological conservation red lines" (*shengtai baohu hongxian*). This is a vision for scientific planning that, according to environmental characteristics of each area, divides up the country into urban, agricultural, and ecological functional zones. Areas most suited to ecological goals are cordoned off with red lines.[31] The vision builds on a broader project to enact major functional zone planning and on prior policy on "national ecological functional zones" kicked off as early as 2006 (Lü 2013; Ouyang 2016; Yeh forthcoming). This is spatial planning on an unprecedentedly massive scale, with correspondingly significant implications for land use change.

Park policy discourse aligns national parks with this broader spatial planning effort. Policy documents are peppered with language about spatial-scientific planning. One of the articulated "basic principles" of the parks, for example, reads, "based on the actual needs and development stages of the country's ecological protection, scientifically determine the spatial layout of national parks."[32] Elsewhere, officials have expressed a commitment to

fazhan guihua juxing fabuhui)," August 20, 2021. http://www.forestry.gov.cn/main/3957/20210825/154558028733491.html.

[31] "Suggestions of the Central Committee of the Communist Party of China on Formulating the Fourteenth Five-Year Plan for National Economic and Social Development and the Vision for 2035 (*zhonggong zhongyang guanyu zhiding guomin jingji he shehui fazhan di shisi ge wunian guihua he 2035 nian yuanjing mubiao de jianyi*)." 2020. Xinhua News (*xinhua she*). http://www.gov.cn/zhengce/2020-11/03/content_5556991.htm.

[32] Central Committee of the CCP, State Council. 2017. "The General Office of the Central Committee of the Communist Party of China and the General Office of the State Council Issued the 'Overall Plan for Establishing the

> optimize the layout of nature reserves. We will work with the Ministry of Natural Resources and the Chinese Academy of Sciences to conduct a systematic analysis and scientific evaluation of the country's important ecosystems, wild animal and plant species, natural relics, and natural landscapes, and based on the third national land survey data, land and space planning and ecological protection red line, promote the integration and optimization of nature reserves, identify gaps in protection, improve the protection system, and strengthen the capacity building of nature reserves.[33]

Here, the expressed imperative to pursue ecological protection in nature reserves (of which national parks are one, central category) explains the need to scientifically evaluate natural resources and use national-scale spatial planning. While this kind of planning may offer real benefits for maximizing a nation's ability to provide ecological services and protect ecosystems and species of interest, China's mode of implementing this planning raises questions that have dogged geographers for many decades about the role that production of geographic information plays in facilitating processes of colonization and other dominating forms of rule. In China, Yeh (forthcoming) has shown how areas falling within ecological protection zones can be subject to swiftly implemented new rules curtailing activities and threatening economic well-being for residents. Moreover, and considering again the example of Sanjiangyuan and its historical-political context, national parks' role in national spatial planning suggests a fresh chapter in a series of ecological construction projects in western China that have brought increasing territorialization (Yeh 2005). As with previous iterations, this territorialization works in part by assigning particular purposes to particular spaces (here, ecological protection) and particular people (such as residents-turned-rangers) (Yeh 2009b). Mirroring the way in which "national

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National Park System' (*zhonggong zhongyang bangongting guowuyuan bangongting yinfa 'jianli guojia gongyuan tizhi zongti fangan'*)." National Forestry and Grassland Administration. http://www.gov.cn/zhengce/2017-09/26/content_5227713.htm.

[33] *National Forestry and Grassland Administration WeChat Public Account (*guojia linye he caoyuan ju weixin gongzhonghao). 2021. "The State Council Information Office Held a Press Conference on the '14th Five-Year Plan' Forestry and Grassland Protection and Development Plan (*guowuyuan xinwenban jiu 'shisiwu' linye caoyuan baohu fazhan guihua juxing fabuhui*)," August 20, 2021. http://www.forestry.gov.cn/main/3957/20210825/154558028733491.html.

nature" ideologically territorializes nature, here ecological prioritization discourse supports a material territorialization process ongoing through the project of spatial planning. The context of functional zoning projects in China, and even the longer history of special economic zones as a spatial technology both help explain ecological prioritization discourse and help understand its ramifications. In these ways, national park policy discourse calls parks into existence, assembling knowledge from, in part, interactions with Western-based conservationists, but also in part from Chinese government prioritizations that especially emphasize national representativeness and primacy of ecological protection. As consideration of Sanjiangyuan shows, however, these emphases will touch particular park spaces and communities in historically specific ways, with important implications for equity and justice in park implementation.

Conclusion: Global Translation

What, then, does this tell us about the workings of translation? National parks work at least to some extent as a "standardized package," recognizable in its main definitions and useful in facilitating communication, such as the study tours, delegations and recommendations exchanged between Western-connected conservationists and counterparts in China. And yet there are distinct and selective emphases in Chinese policy documents' version of parks that suggest government agencies are utilizing the concept's ability to work also as a more flexible "boundary object."

Michael Lewis (2004) has reviewed three models seeking to explain the global circulation of ideas. These comprise "scientific diffusion," which paints the process as natural and inevitable, "cultural imperialism," which emphasizes Western power spreading ideas

through means like advertising and education, and “globalization,” which, at least in some articulations, succeeds in allowing a measure of local appropriation, but fails, in Lewis’ view, to adequately address power relations. Lewis astutely determines that none of these options fully explains the object of his interest, the “invention” of global ecology. I would like to close with the argument that “translation,” as explored through Chinese national parks, offers a compelling alternative model. It does so in at least four ways.

First, to state what I hope by now seems obvious, “translation” denies the possibility that any globally roaming idea can remain unified. There is no singular “national park,” “conservation,” or “nature.” On a linguistic level, Lydia Liu (1995) has argued that equivalencies among languages are no more than “tropes,” and further that translation acts are necessarily shaped by the purposes for the translation and the power relations therein. It is these kinds of purposes and power relations that, at the translation level of global ideas, Lewis (2004) addresses in describing global ecology as invented. Celia Lowe (2013) embarks on a similar project in an investigation into the making of “biodiversity” in the Togean Islands of Indonesia. Anna Tsing (1997, 253), in discussing the origins and travels of feminism and environmentalism, deems translation, provocatively, a “necessarily faithless appropriation,” whose resultant meaning “arises from the slippages and supplements of the confrontation.” Given the patchy “faithfulness” evident in how Chinese park policy selectively emphasizes national nature and ecological protection, Tsing’s description seems apt, especially if we understand “appropriation” as Jonathan Bach (2017, 7) does, as a process by which things are “actively (re)incorporated into the present and given new value.” Discourses focused on national nature and spatial-scientific planning certainly suggest new value.

Second, “translation” shifts the abstractions of “globalization,” “imperialism” or “diffusion” to specific work of individual “translators.” This is the level where translation actually gets done. Rodenbiker’s (2021) approach to understanding the making of “ecology” in China through the work of individual historical figures reveals that it was their specific positions within fields of

ecology, Marxism, economics and earth systems that together made ecology "developmental" in China. My focus on the individual level in this chapter has shown how not just situatedness within fields, but also intimate affect plays an important role in Western-based conservationists' translation work. The individual level is also a key site for politics. Considering how some come to have better access to participating in translation than others and also how translation happens through diplomatic "speech strategies" draws out power relations more effectively than abstract "diffusion" or "globalization" models, and with more nuance than "imperialism."

Third, "translation" allows for distributed agency. As Lowe (2013) argues, nature-making in the global South, not just an all-powerful North, has been integral to the emergence of "biodiversity." Tsing (2005, 5) discusses "zones of cultural friction," where instead of unimpeded "flow," generative "friction" in global connections can "lead to new arrangements of culture and power." We can observe such frictions and new arrangements of power through diplomatic speech strategies and through Chinese policy's "faithless" reworkings of definitions of nature; "translation" in fact facilitates recognition of this friction as a symptom of multiply-situated agencies.

Finally, "translation" points to the importance of the particular– geographical and historical– in how ideas settle into new contexts. Words are translated *into* languages and globally circulating ideas are translated *into* places and histories. Aihwa Ong (2006, 13) has written, of traveling techniques of neoliberalism, that they are "decontextualized from their original sources and recontextualized in constellations of mutually constitutive and contingent relationships." This chapter's analysis of "national nature" and prioritization of ecological protection has shown how such recontextualization, of definitions of nature rather than neoliberalism, results in specific and important processes of territorialization in Sanjiangyuan National Park.

In these ways, "translation" serves up a useful analytic for thinking through global movement of ideas. It escapes monolithic and unidirectional models ("tidal wave," Ong (2006)

calls the conventional view of neoliberalism), and instead offers a view of translation as patchy, political, and place- and history-specific. Translation multiplies, rather than universalizes. As Doreen Massey has quipped, “globalization can in no way be equated with homogenization” (1992, 162).

The work of translation considered here is consequential. Undoubtedly, it is consequential for the survival of threatened species, persistence of unique ecosystems, and delivery of ecosystem services. Given current government plans to remove some residents, and make changes to the allowed activities of others, translation is also consequential for these populations, and for how China approaches equity along urban-rural and Han-minority lines. Globally, as the earth warms and the imperative for global environmental governance grows urgent, proposals for global solutions, for doing the same thing everywhere, proliferate. While such approaches may simplify the trouble of assessing efficacy, and thus holding accountability among large numbers of countries, proposals that assume an approach (like national parks) is singular, that overlook inequities in who gets to determine approaches, that fail to consider how multiple agencies will shape the approach, or forget that any approach interacts with place-based particularities ultimately risk unintended and perhaps inequitable or violent consequences. “Translation,” I believe, can help.

CHAPTER TWO:

TREES MADE OUT OF FINTECH:
VALUING CARBON AND ACCUMULATING CAPITAL IN ANT FOREST

"I think everybody has the dream to become a hero and change the world," says Xu Di, head of the Alipay Ant Forest project, in a video produced by the United Nations Environment Programme, "but they cannot achieve this dream for various reasons in daily life." Over a drone shot of desert dunes, studded with a grid of tiny green trees (fig.1), his colleague Eric Jing, Chairman and CEO of Ant Financial, adds, "this is about the whole world. It's about the whole planet. Can everyone participate in collaboration to generate even bigger impact?"[34]

Figure 3. Still frame from a UNEP video celebrating Ant Forest.

Ant Forest won the UNEP's 2019 Champions of the Earth Award. This frame shows Ant Forest afforestation lands. *Source: https://www.youtube.com/watch?v=ZHHlWUPoppM&ab_channel=UNEnvironmentProgramme*

[34] UN Environment Programme. 2019. *Champion of the Earth 2019 - Ant Forest*. https://www.youtube.com/watch?v=ZHHlWUPoppM.

Ant Forest is a function of the Chinese Alipay app, a project of e-commerce parent Ant Group, a financial innovation, a game, the largest personal carbon accounting system in the world (Zheng and Meng 2018), and yes, a forest, or a collection of them, stretching mostly across the marginal desert lands of Inner Mongolia, Gansu, Qinghai and Shanxi provinces (fig.2). Since it launched in 2016, individuals who download the app use it to track their “green lifestyle” choices. Each environmentally friendly action logged-- enrolling in paperless billing, riding bike share, opting for digital receipts for purchases-- earns points that nurture a digital tree in the app. When enough “green energy” points are accumulated, Ant Forest plants an actual, physical tree in an afforestation plot. A webmap interface allows users to pinpoint the forest area their tree has contributed to, and in the app, another seedling is born. This paper investigates the phenomenon that is Ant Forest: what it promises to achieve, its machinations in the market environment, and what kinds of results this bold initiative may deliver.

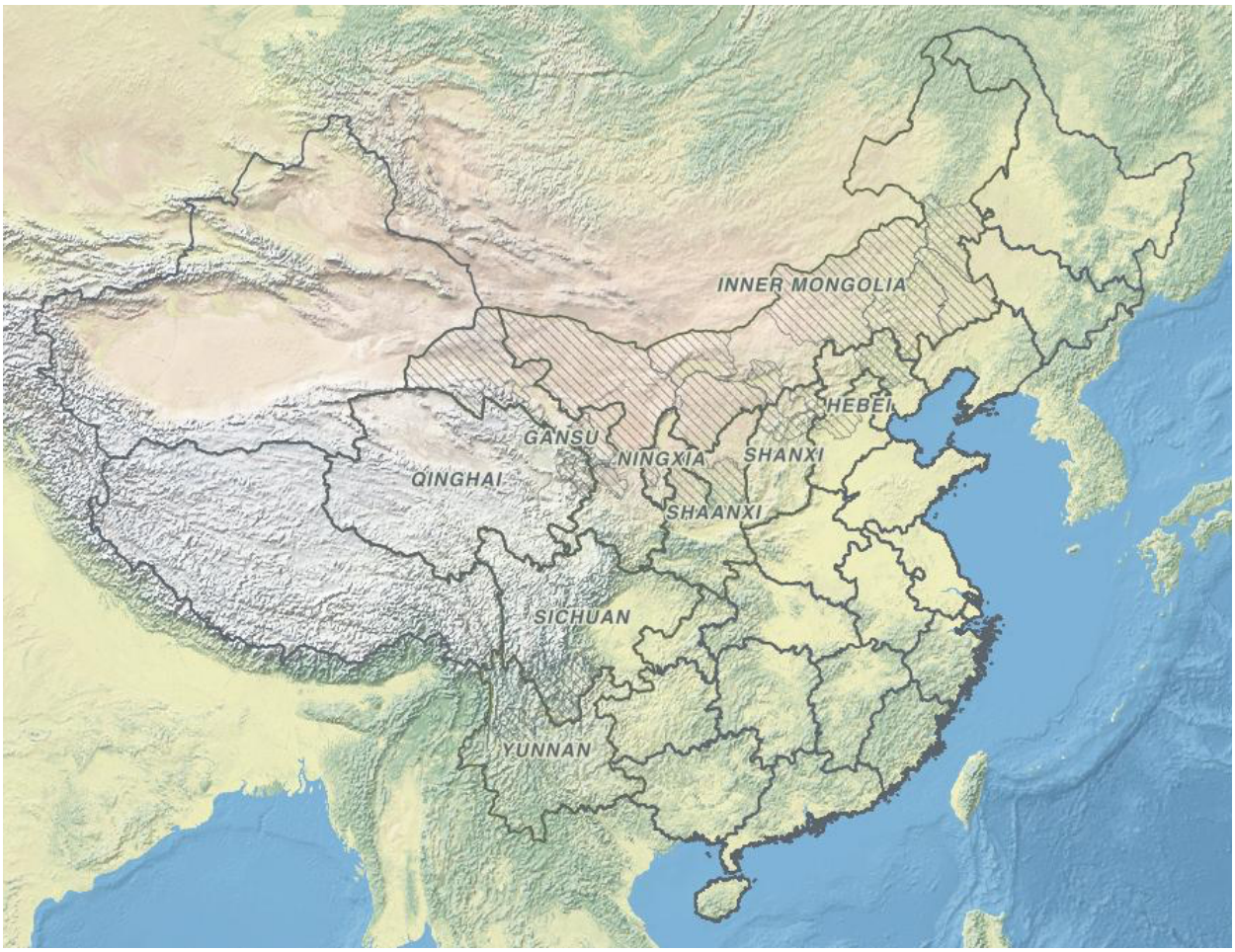

Figure 4. Prefectures (and prefecture-level cities and leagues) home to one or more Ant Forest afforestation plots (shaded).

Most projects are located in arid northern and western provinces.
Data sources: Ant Forest app, Natural Earth, GADM; made with QGIS

In September 2019, the United Nations Environment Programme (UNEP) honored Ant Forest with a Champions of the Earth award, the UN's highest environmental recognition, for "turning the green good deeds of half a billion people into real trees planted in some of China's most arid regions."[35] The project's accomplishments are indeed impressive: with more than 550 million app users, it boasts having planted more than 200 million trees over more than 2.74

[35] "Chinese Initiative Ant Forest Wins UN Champions of the Earth Award." 2019. UN Environment. September 19, 2019. http://www.unep.org/news-and-stories/press-release/chinese-initiative-ant-forest-wins-un-champions-earth-award.

million *mu*, reducing carbon emissions by more than 12 million tons. Paperless user activities alone have reduced China's paper usage by 300 million pieces of A4 paper per week, according to Alipay's Sustainability Report.[36] Inger Andersen, Executive Director of the UNEP, applauded, "Ant Forest shows how technology can transform our world by harnessing the positive energy and innovation of global users."[37]

As a project of Ant Group, Ant Forest suggests that market interests and this environmentally-positive transformation can go hand in hand. Is Ant Forest indeed a viable model for meeting environmental challenges through market mechanisms? In this chapter, I argue that Ant Forest, by harnessing both technology and finance (combined as fintech), *does* innovatively transform the market-nature relationship, but with much greater success in accumulating capital than in making environmental gains. The harmony of market-environment marriages, such as the one Ant Forest proposes, has attracted critique from social scientists, especially since the advent of "sustainable development" in the 1980s. Lack of clarity in the definition of "sustainable," failure to address overconsumption in wealthy nations, and a tendency to uphold problematic power structures, among other concerns, have been pointed to amongst sustainable development's discontents (e.g. Lélé 1991; Sultana 2018). What's new about Ant Forest, however, is that it pursues SDGs using the combined tools of finance and technology, or fintech. Proponents of fintech hope it will realize the joining of economic interests with environmental benefit that has proven elusive in sustainable development efforts, primarily by removing barriers to increased "green finance" investment (Nassiry 2018). The growth of fintech, globally and in China, has begun attracting social science research (Knight and Wójcik 2020; Wójcik 2021a; Wójcik 2021b), including work that usefully theorizes fintech as the

[36] "Alipay Sustainability Report 2019-2020: Towards a Better Society for the Future." 2020. Ant Group, Alipay. https://gw.alipayobjects.com/os/bmw-prod/e39c99c2-0193-40fc-8265-cf4f72a8367e.pdf.
[37] "Chinese Initiative Ant Forest Wins UN Champions of the Earth Award." 2019. UN Environment. September 19, 2019. http://www.unep.org/news-and-stories/press-release/chinese-initiative-ant-forest-wins-un-champions-earth-award.

intersection of institutions, technologies and financial services (Lai and Samers 2021), explores the relationship between technology and policy in China (Shim and Shin 2016), and even the relationship between fintech and governance there (Gruin 2019; Gruin and Knaack 2020). But little of this work critically addresses what happens when fintech enters the environmental conservation realm (see, however, Knuth's 2018 work on fintech and clean energy)– in other words, when it proposes a new approach to sustainable development.

This chapter begins this investigation by establishing the object of analysis as the "combinatorial power" of "finance + tech + green." This first section traces the growth of green finance in China and the development of technology's role in Chinese economic policy to show how these elements merged into green fintech, an idea holding the hopeful promise to be more powerful than any of its constitutive elements alone.

The second section considers "defining green" as an exercise of Ant Forest's fintech power and asks what that exercise achieves– where it succeeds and where it may fail. Although schemes that marketize nature are becoming central to approaches to address climate change globally, social science research often finds that they don't work. One kind of failure is a failure to reduce atmospheric carbon to the extent predicted; some observers of this phenomenon theorize that nature fails to fit tidily into valuation systems such as ecosystem services trading (Robertson 2006) and that these "unruly natures" (Knuth 2014) go on to introduce instability into the resulting economic systems. Another kind of failure is failure to "take off," or garner the investment, support and replicability predicted. The UN's Reducing Emissions from Deforestation and Forest Degradation program (REDD and REDD+) has particularly received this criticism, as just one more in a series of failed market-based "conservation fads." Although proponents blame implementation problems for low success with these projects, critical perspectives point to inherent problems in applying capitalist logic to nature (Fletcher et al. 2016). "Enterprising nature," as Jessica Dempsey terms this turn to marketization, fundamentally entails "efforts to transform diverse natures into economically competitive

entities" (Dempsey 2016, xi). In this section I show how Ant Forest participates in this "enterprising" process by assigning value to nature, and specifically carbon. I find that this value is produced by using a "by transaction" technique for counting carbon. This technique relies on a particular way of defining "greenness" in users' green activities that derives more from political-economic relationships underlying Ant Forest than from consideration of the activities that would most reduce atmospheric carbon. I also borrow from critical theories of development to highlight the role that appearances and practices of technicality play in "enterprising nature." "Rendering technical," Tania Li (2007) has argued, serves as a key practice in transforming the "will to improve" into development projects, resulting in a depoliticization of the issues and proposed solutions at hand. James Ferguson and Larry Lohmann (1994) have thus branded the project of development broadly an "anti-politics machine." Uncovering counting carbon "by transaction" demonstrates how Ant Forest, in a project to develop carbon forests, employs such "rendering technical" strategies that depoliticize an in fact deeply political effort to value nature, and how those political underpinnings deliver capital accumulation while compromising actual carbon reduction.

In the third section, I turn to "carbon futures," the production of forest carbon credits, a potential future for capital accumulation in Ant Forest, as a financial, speculative approach to nature. The coexistence of capital accumulation "success" alongside "failure" to generate environmental outcomes has been particularly observed in instances of the "financialization of nature." Ouma et al. (2018) define this trend as "a process of ontological reconfiguration through which different qualities of nature and resource-based production are translated into a financial value form to be traded in specialized markets" (Ouma et al. 2018, 501). I understand the ontological shift here to be temporal, drawing on Cédric Durand's (2017) definition of finance: "an accumulation of drawing rights on wealth *that is yet to be produced*" (emphasis added). In other words, financialization of nature first identifies a new aspect of nature that may be commodified, then generates money based on value from that aspect that has yet to

materialize. As with much of the research on financialization of nature, I ask how value is created in a place where there was no value before, and where the value still lacks material benefit. Others who have tussled with this have identified, among the "frictional processes" involved, a reliance on moral values to generate capital (Ouma et al. 2018), and a geographic extraction of cheap carbon reductions from the global South to benefit the North (Bumpus and Liverman 2008). Contributing to this conversation, I expand the range of where value in carbon credit production occurs to theorize not one but several possible sites of extraction, broadly defined, that could generate capital in an Ant Forest carbon credit production scheme. Following Mezzadra and Neilson's (2019) expansive theorization of the operations of contemporary capital, these sites of extraction lead me to, but also beyond, expropriated land and exploited labor, revealing how the applications of finance and technology to carbon forestry may serve to multiply processes of extraction.

We are speaking, however, of processes of capital accumulation in contemporary China, which presents a particular central-state regulatory environment for such processes; Ant Forest is no exception. In the fourth section of this chapter, I relate the tale of Ant Group's apparent fall from grace, in which the central government pulled the Group's IPO, projected to be the largest sale of shares in history, two days before it was to debut on the Hong Kong and Shanghai exchanges in November 2020.[38] What can this debacle tell us about the role of the state in the financialization of nature? While Western news media have predominantly read the event as the heavy hand of authoritarianism, Chinese financial regulators have framed it as a move to "prevent disorderly expansion of capital."[39] I argue that prevention of "disorderly capital"

[38] More reporting on this incident can be found at: https://www.nytimes.com/2021/04/28/opinion/jack-ma-china-ant.html

[39] "Interpretation of the Spirit of the Central Economic Work Conference: Preventing the Disorderly Expansion of Capital (*jiedu zhongyang jingji gongzuo huiyi jingshen*)." 2020. Central People's Government of the People's Republic of China. December 27, 2020. http://www.gov.cn/xinwen/2020-12/27/content_5573663.htm.

describes a strategy more coherent than authoritarianism, and a logic through which fintech capital operates.

* * * * *

What began as a fascination with the specifics of Ant Forest at the start of this project morphed into a much broader sojourn, in part organically and in part out of necessity. It wasn't clear, beginning research on this topic at the end of 2020, directly following the Ant Group IPO drama, just how challenging that episode and its aftermath would make gathering data on Ant Forest. I had planned to conduct interviews with members of the NGO and foundation partner organizations with whom Ant works to implement afforestation projects. In the end, I spoke with two senior executives of such organizations, and dared to ask only one direct questions about Ant, fearing I was likely to compromise my research relationship with the other if I broached the topic. Many requests for interviews went unanswered. But even as specific information about Ant's operations grew elusive, it became clear that other perspectives would be necessary to understand processes of capital accumulation and the impacts of finance and technology on schemes such as Ant's.

To that end, I conducted other semi-structured interviews on Zoom with experts on voluntary forest carbon markets to understand trends in the development of carbon forestry in China, and with legal and policy experts on rural land tenure to help decipher the role of land use rights in afforestation projects for credits. I analyzed a collection of Chinese government policy documents and news releases pertaining to green finance, fintech, technology innovation, platform economy and afforestation, to chart how the conditions for a model like Ant Forest coalesced. And I logged into Alipay, began tracking my green activities, and, eventually, grew a tree of my own. This autoethnographic aspect, while undoubtedly banal to the hundreds of millions of regular users in China, served as an essential generator of questions as I progressed

through the twin processes of growing a tree and doing research. In the often highly abstracted world of finance, carbon credits, and supposedly mythic powers of technology, trees lined up in the desert and my slowly growing tally of green energy points are where my curiosity began and always returned to. So I return throughout this chapter as well to these at least somewhat more concrete illustrations of actually occurring nature-producing fintech. Due to its wide-ranging qualities, this chapter is perhaps only in part an investigation of Ant Forest itself, and more an investigation of the Ant Forest model– a model where technology, finance, trees, carbon and capital collide, with important implications for capitalism in environmental crisis.

Finance + Tech + Green

Ant Forest occurs at a particular confluence of things in China today: green finance, internet and technology, and the desirability of greenness, and trees in particular. In this sense, Ant Forest is both conjunctural– arising from a historically specific set of conditions, here especially policy conditions– and *combinatorial*, a product of several elements (finance, technology, greenness) that can achieve more together than any one element alone, or so the promise goes. This combination, whose power is much touted in central government policy documents and news publications, is central to what Ant Forest is, how it works, and its success. Here I'll trace each of these elemental strands to the confluence to see how they come together to promise the combinatorial power that will serve as the object of the chapter's analysis.

Green Finance

Green finance can be simply understood as a set of techniques to direct capital to projects and investments that deliver some form of environmental benefit. As the UNEP specifies, "green financing is to increase level of financial flows (from banking, micro-credit, insurance and investment) from the public, private and not-for-profit sectors to sustainable development priorities."[40] It's been calculated that in order to achieve the SDGs and the aims of the Paris Accord, five to seven trillion dollars of investment in environmentally friendly industry are needed annually (Cen and He 2018). Green finance promises to fill that funding gap by directing investment toward green sectors of the economy. It can take forms such as carbon trading, environmental funds, weather derivatives, and nature-linked securities, among others (Wang and Zhi 2016). In order to attract investment to these new projects and financial products, however, the UNEP explains that some form of incentive is needed, often in the form of public-private partnerships or in the form of government regulations.

Green finance is experiencing growth in China unlike in any other country, shepherded by a spate of such government regulations. The People's Bank of China (China's central bank, PBoC) institutionalized green finance ahead of any other nation's central bank in 2016, with the release of "Guidelines for Establishing the Green Financial System" (Sandalow 2019). In October 2020 the central government issued "Guiding Opinions on Promoting Investment and Financing to Address Climate Change," which directs financial institutions to better support investment and finance that responds to the demands of climate change.[41] In 2018, the country issued 144 green bonds, totaling 267.593 billion RMB, making China one of the largest green

[40] More on UNEP programs on green finance: https://www.unenvironment.org/regions/asia-and-pacific/regional-initiatives/supporting-resource-efficiency/green-financing#:~:text=Green%20financing%20is%20to%20increase,sectors%20to%20sustainable%20development%20priorities

[41] Ministry of Ecology and Environment, National Development and Reform Commission, People's Bank of China, China Banking and Insurance Regulatory Commission, and China Securities Regulatory Commission. 2020. "Guiding Opinions on Promoting Investment and Financing to Address Climate Change (*guanyu cujin yingdui qihou bianhua tou rongzi de zhidao yijian*)." https://www.mee.gov.cn/xxgk2018/xxgk/xxgk03/202010/t20201026_804792.html.

bond markets. In the same year, the country's green loans came to 8.32 trillion RMB, comprising 14.2% of new loans in that year (Zhou et al. 2020). These numbers seem likely to only increase with the July 2021 institution of the PBoC's "Green Financial Evaluation Program for Banking Financial Institutions," which evaluates quarterly the green financial products on offer at the 24 banks under the direct supervision of the central bank, and reflects this evaluation in those banks' financial institution ratings.[42] Standardizing what counts as a green investment is integral to such regulatory frameworks, and China's financial regulators appear to be at work on this as well– green bonds were standardized in a 2021-released "Catalogue" from the PBoC, National Development and Reform Commission and Securities Regulatory Commission that lists the products that will benefit financial institution ratings.[43]

Ant Forest and its parent Ant Group, however, operate rather beyond this realm of central banks and bond markets. In fact, Ant Group, an affiliate of Alibaba, did business, including a large microloan operation, entirely outside the banking system until the central government's pulling of the company's IPO, leveling of antitrust fines, and subsequent series of requirements that Ant comply with banking regulations (discussed in the fourth section of this chapter).[44] In addition to processing online payments, Ant Group's business works by partnering with financial institutions, providing them the technology and market reach to successfully offer a line of financial products, which are accessed through the Alipay platform, or "super app." They include, in addition to consumer credit, investment and insurance products. Users can come to this single super app to find digital payment, digital finance, and other "digital daily life" services, including Ant Forest.[45] In this way, Ant draws interest and capital to its investments–

[42] "The Central Bank Directly Assesses the Green Finance of 24 Banks, and Green Bonds Will Usher in Expansion in the Second Half of the Year (*yanghang zhijie kaohe 24 jia yinhang lvse jinrong xia bannian lvse zhaiquan jiang yinglai kuorong*." 2021. 21st Century Business Herald 2. https://mp.weixin.qq.com/s/EV3D_TlT5aSY5y3L3e13Jg.
[43] Ibid.
[44] See, for example: Calhoun, George. 2021. "The Sad End Of Jack Ma Inc." *Forbes*, June 7, 2021, sec. Markets. https://www.forbes.com/sites/georgecalhoun/2021/06/07/the-sad-end-of-jack-ma-inc/.
[45] "Alipay Sustainability Report 2019-2020: Towards a Better Society for the Future." 2020. Ant Group, Alipay. https://gw.alipayobjects.com/os/bmw-prod/e39c99c2-0193-40fc-8265-cf4f72a8367e.pdf.

including trees– not through traditional financial world channels, but through massive-scale crowdsourcing facilitated by technology.

Fintech, Internet +, Platform Economy

Green finance, despite its promise to shift financial resources to the green economy and galvanize market forces into environmental action, has in many places been bogged down by the high costs and lengthy pay-off timelines of environmental projects (Cen and He 2018). This is where technology, and its integration with finance as fintech, promises to lend a hand. The Asian Development Bank Institute claims that fintech has the power to "unlock" green finance (Nassiry 2018); the Paulson Institute says it "drives sustainable development in China" (Paulson Institute and Tsinghua University 2020). The Financial Stability Board, an international monitoring body, defines fintech as "technologically enabled innovation in financial services that could result in new business models, applications, processes or products with an associated material effect on financial markets and institutions and the provision of financial services."[46] To offer more concrete examples: fintech includes innovations like third-party payment, peer-to-peer lending, crowdfunding, robo-advising, blockchain and virtual currency (Cen and He 2018). One analysis of fintech in China identified, as of 2020, 59 fintech companies working in green finance, including 41 green fintech companies (Institute of Finance and Sustainability and Paulson Institute 2021). These companies were found to use fintech tools to pursue green credit, green funds, and green energy market initiatives. Proponents claim that fintech enables green finance by reducing transaction costs, ensuring green products are authentic and traceable (the work of blockchain technology), and by expanding access to green transactions

[46] "FinTech." 2017. FSB. May 12, 2017. https://www.fsb.org/work-of-the-fsb/financial-innovation-and-structural-change/fintech/.

beyond government and big organizations to include individuals across economic classes (Cen and He 2018). In particular, fintech has been conceptualized as a tool to *scale* market-based environmental solutions (Institute of Finance and Sustainability and Paulson Institute 2021).

These are the benefits Ant Group has explored in its version of green fintech. Ant does have its own green investment portfolio– a more traditional version of green finance where Ant prioritizes investing in areas like clean energy, environmental governance and carbon neutrality. But Ant also operates a Green Fund Channel, where wealth management firms use the Alipay platform to offer green investment products to app users. The Channel houses a green credit system, where merchants using MYbank, Alipay's online lender, can obtain a "green operation score" by implementing various green business practices, and get rewarded with lower loan interest rates. And Ant is developing its blockchain technology, AntChain, for green applications, such as tracing and authenticating green agricultural products.[47]

The growth of fintech in China emerges from government policy support for technology, and its combinatorial powers in particular. In 2015, this was articulated in Chinese policy as "Internet +," the integration of the internet into all other sectors that would offer new opportunity for economic development and innovation.[48] "Internet +" included ideas for how the internet could bring such new opportunity to "green ecology," but with somewhat limited imagination. Internet-enabled environmental monitoring and systems for waste recycling, it was suggested, would be worthwhile applications.[49] By 2021, the policy priority was termed "platform economy," and its relationship to environmental goals much more explicit– Xi Jinping, presiding over the 9th Meeting of the Central Finance and Economic Committee in that year, identified platform

[47] "2020 Sustainability Report: Digital Responsibility and Green Development, Building a Better World Together." 2021. Ant Group. https://www.antgroup.com/en/news-media/media-library?type=Sustainability%20Report.
[48] State Council. 2015. "Guiding Opinions of the State Council on Actively Promoting the 'Internet +' Action (*guowuyuan guanyu jiji tuijin 'hulianwang+' xingdong de zhidao yijian*)." http://www.gov.cn/zhengce/content/2015-07/04/content_10002.htm.
[49] State Council. 2015. "Guiding Opinions of the State Council on Actively Promoting the 'Internet +' Action (*guowuyuan guanyu jiji tuijin 'hulianwang+' xingdong de zhidao yijian*)." http://www.gov.cn/zhengce/content/2015-07/04/content_10002.htm.

economy as central to pursuing the country's carbon peaking and neutrality goals, through increased resource efficiency and digitization and intelligence.[50] Policy think tanks like the U.S.-based Paulson Institute continue to recommend more specific regulation and support for "sandboxes" for experimenting with new business models for China to take full advantage of fintech's potential to drive sustainable development and aid achievement of the country's carbon peaking and neutrality goals (Institute of Finance and Sustainability and Paulson Institute 2021). Through such policies and advocacy, technology emerges as the lynchpin that promises to allow financial economic development to blossom alongside achievement of environmental goals. When Ant Group, well-practiced, as we've seen, in green fintech, takes up tree planting, however, what does the combinatorial power of these elements yield?

Defining Green

A little after 4:00pm, my phone pings– it's time to collect my Ant Forest "green energy." I open the app and tap the bobbing green orbs above my virtual growing tree to collect my energy for the day (fig.3). Green energy accrues from participating in "green activities," in quantities of "grams" where one gram of energy represents one gram of carbon saved or reduced from participating in the activities (PRCEE 2019). But the energy does not become available immediately; rather, most of it becomes collectable right around 7:30am Beijing time, a feature some argue both works to draw users back to the app every day and offers a social benefit of getting 550 million users up and starting their day at an early, healthy hour (Zhang et al. 2021). If you don't log in to scoop up your energy right away, it quickly becomes available for your

[50] *Xinhua News Agency*. 2021. "Xi Jinping Presided Over the Ninth Meeting of the Central Finance and Economics Committee 2021," March 2021. http://www.gov.cn/xinwen/2021-03/15/content_5593154.htm.

friends to “steal,” so I heed the call to drop everything and log in to safely store my hard-earned energy as soon as the notification pings in.

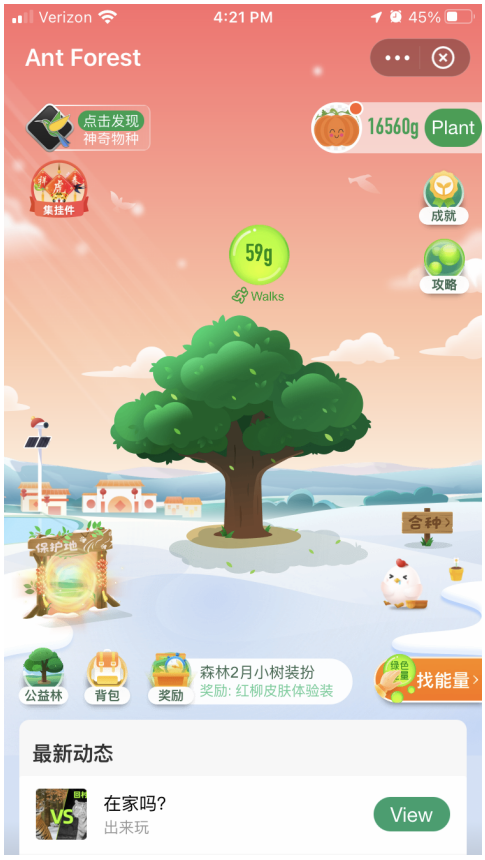

Figure 5. Screenshot from the Ant Forest app, showing it's time to collect green energy.

My typical daily haul is between 100 and 200 grams of energy, almost entirely from walking. For the vast majority of users located in China, a wide and growing range of activities can earn energy (fig.4), roughly divided into the categories of “green travel,” “travel reduction,” “circular use,” “paper and plastics reduction,” and “energy efficiency.” But the landscape of my American daily life lacks the proliferating QR codes and other connections into the Alipay system that allow the platform to log your green activities, so I walk. And it turns out walking is not an insignificant source of green energy for other users as well. One 2019 report on Ant Forest data found that approximately 68% of green energy was derived from activities in the “green travel” category (at the time of the study, these activities were walking, riding shared

bikes, riding the bus, and riding the subway); of that, 90% came from walking alone (PRCEE 2019). The impact of these green activities, including walking, appears not insignificant: as of August 2019, users' pooled, calculated carbon emission reductions exceeded 7,920,000 tons (PRCEE 2019). This number inspires hope– the idea that encouraging walking and other green behaviors, then counting steps and logging activities can result in such a reduction certainly makes a better, low-carbon future seem possible. But a little more attention to the techniques of carbon accounting, and the political and economic forces that shape these techniques, reveal a much higher level of uncertainty in actual carbon emission impacts than such calculations would suggest.

	Activity	**Green Energy Collected**	**How to Collect**
Green travel	Walk	Approx. 1g per 60 steps, max 296g per day	Allow Alipay platform to count steps
	Ride bikeshare	1.8g per min, up to 30 mins, max 88 mins per day	Rent a Hello brand shared bike or e-bike; pay using the Alipay platform
	Ride public bus	80g per bus fare transaction, up to 5 transactions per day	Use Alipay to scan a QR code to pay for the bus
	Ride subway	52g per subway fare transaction, up to 5 transactions per day	Use Alipay to scan a QR code to pay, or pay through the subway app, and choose Alipay as payment method
	Drive electric vehicle	33g per km, max 891g per day	Must use a vehicle make and model supported by Ant, currently models from FAW-Volkswagen
	Use public electric charging station	32g per kilowatt charged, max 1 charge per week, 960g per charge, 3840g per month	Use Alipay to scan and pay at the station; must visit one of several supported charging station businesses
Travel less	Online train ticket purchase	136g per ticket transaction, max 10 transactions per month	Use Alipay to purchase tickets through the supported booking platforms 12306 (official China Railway site) or Fliggy (*feizhu,* owned by Alibaba)

	Online movie ticket purchase	180g per transaction, max 10 transactions per month	Purchase ticket through Taopiaopiao (owned by Alibaba)
	Green government affairs	15g per services use, max 1 usage per month; 104g per transaction on untaxed payments (traffic violation fines, testing fees, household certificates), max 50 transactions per month	Through the "civic center" online platform, use government services marked as carrying green energy, like social security, pension, transportation administration or others
	Utility bills	262g per transaction, max 1 payment per household account per month	Pay water, electric and gas bills through Alipay's utilities platform
	Green medical care	277g per online registration, max 5 times per month; 2g per online test result inquiry, max 10 times per month	Register for a hospital or doctor's visit, or collect test results, through Alipay's health platform
	Green office	max 51g per day, 13 from video calls, 18 from phone calls, 10 from electronic approvals and logs	Link meeting app DingTalk (*dingding*) to Alipay account to earn energy
	Parking	819g per 24-hour parking period, max once per week	Using Alipay's green car owner account, log a full 24 hours of not driving your car
	Green banking	219g for opening an online banking account; 35g per loan taken out, max one per month; 21g per loan payment made, max 5 per month	Open a MYbank (*wangshang yinhang,* backed by Ant Group) account; take out a loan greater than 1000RMB
	Pay credit card bill	21g per transaction, max one per month	Pay bill through Alipay's credit card payment platform
Circular use	Green recycling	Amounts differ by recycled object, including 158g per kg of used clothing, 631g per mobile phone, 9763g per large household appliance	Order a recycling pickup through the recycling merchant applets hosted on Alipay's recycling platform
	Green hotel check-in	92g per green check-in, max 20 times per month	At a participating hotel (Sunmei, Holiday Inn or through Muniao short-term rental platform), earn energy by not using hotel toothbrush/toothpaste/comb/soap
Reduce paper & plastics	International tax refund	4g per transaction	Complete tax refund through Alipay
	Offline payments	5g per transaction, max 10 transactions per day	At any participating store, scan a QR code to pay through Alipay

	Electronic invoice	5g per transaction	Opt for electronic invoice when paying through Alipay
	Green food delivery	16g per transaction, max 5 times per day	When purchasing through Ele.me or Hema (Alibaba-owned services for takeout and grocery delivery, respectively), opt out of receiving utensils
	Paperless reading	Amount depends on number of characters read, max 150g per day	Buy e-books through Alipay's e-book applet.
	Reduce plastics	12g per transaction, max once per day	At participating stores, make a purchase through Alipay and opt out of a plastic bag
	Green cup	5-30g per transaction, max 10 transactions per day	At participating stores, make a purchase through Alipay and choose to use your own cup, use a mug, decline a straw and/or decline a plastic takeout bag
	QR menu ordering	7g per transaction, max 5 transactions per day	At participating restaurants, order dine-in or takeout using a QR code menu (and Alipay)
	QR ticket purchase	5g per transaction, max once per day	At participating ticketed scenic areas, purchase tickets through a QR code (and Alipay)
	Credit hotel	5g per transaction, max 3 transactions per day	When booking a stay at a participating hotel, choose to pay with Zhima Credit (an Ant Group credit system)
	Online postage	4g per transaction, max 5 transactions per day	Use a participating package delivery service app to arrange mailing items online
	E-signature	6g per signature, max 3 transactions per day	Link Alipay account to the eQianbao e-signature app to collect energy
	Green soda fountain	4g per transaction, max 16g per day	At supported soda fountains on participating school campuses, bring your own cup and use Alipay to purchase
	E- receipt	4g per transaction, max 10 transactions per day	At participating stores, use Alipay to pay and choose e-receipt
	Electronic car insurance policy	59g per e-policy	Use Ant's car insurance platform to buy a policy
Energy efficiency	Electronic toll collection	23g per transaction	Set up electronic toll collection to collect payments through Alipay
	Rent shared power bank	13g per rental, max once per day	Rent a shared power bank through a partner rental station
	Parking fees	18g per transaction, max 3 transactions per day	Pay for parking through Alipay's parking platform

	Green household appliances	753-18400g per transaction, depending on appliance	Buy green appliances through Tmall (*tianmao,* owned by Alibaba), using Alipay

Figure 6. Ways to collect green energy in Ant Forest.

Data source: Ant Forest app, March 2022

Gifford (2020) has argued that instability gets introduced into forest carbon accounting schemes at three "points of engagement," identified as "baseline determinations," calculation of additionality, and the role of uncertainty. These each are crucial to accurately understanding how much carbon a forest actually sequesters: you first need to know how much carbon would be sequestered in a "baseline" scenario, without the afforestation, new forest protections, or other action intended to increase sequestration; next, you need to calculate additionality, or how much benefit the project will deliver, *additional* when compared to the baseline scenario; finally, you need to understand and account for how high the level of uncertainty in these scenarios might be. Gifford points out that because of instability at these "points of engagement," many forest carbon projects have failed to result in actual reductions of atmospheric carbon. And one analysis of China's forest carbon market prospects has indeed noted that global demand for forest carbon credits remains low, in part because "forest carbon projects encounter difficulties in setting benchmark, substantiating the additionality, resolving non-permanence, avoiding leakage, and measurement and monitoring" (Lu et al. 2019, 66). This highlights how important believable and verifiable accounting techniques are to market success of carbon credits. But considering Ant Forest's green energy accounting techniques in light of Gifford's "points of engagement" schema reveals sources of instability, including sources originating from technological innovations Ant Forest contributes to carbon accounting.

Is there any real additionality to green activities? Although the PRCEE (2019) calculation above claims carbon "reduction," and Ant celebrates its ability to inspire a "low-carbon lifestyle," there appears to be no defined baseline for activities such as walking– Ant does not know

whether it has caused a user to walk to work instead of driving, or whether they would have walked anyway. Ant does not know that, when I see I have not maxxed out my daily walking green energy, I head out for some laps around the block. This is good for my health, but in no way translates to a real reduction in carbon emissions. Other users might go out and ride the bus around town instead, which would generate green energy for them, but actually marginally *increase* their carbon emissions. Because Ant Forest awards green energy for activities without accounting for individuals' baseline behaviors, any claims of additionality, and thus actual, quantified emissions reductions, are dubious at best, and fully fabricated at worst.

There's one other way I collect green energy: a magical occurrence known as "energy rain." Each day I enjoy one opportunity to play a game in which I collect as many orbs of green energy as I can while they rain from top to bottom of my screen. That's it. I usually reap about 150g of free energy for which I did nothing except burn a little extra real-life energy from my phone battery. If I "gift" an extra "energy rain" opportunity to a friend, I get an extra round also. As with the energy that only matures at a certain time daily, the instant gratification and daily metered opportunities of energy rain keep me consistently coming back to the app. Indeed, Ant Forest's uncanny ability to attract and hold users, including through gamification techniques, is the subject of much of the small body of research on the app to-date (e.g. He 2018; PRCEE 2019). But it is with this daily influx of energy rain that the integrity of "green energy" as equivalent to carbon emissions reductions really begins to break down.

After "green travel," the second most energy-productive category of activities in Ant Forest among all users is online payments (PRCEE 2019). The centrality of online payments to the collection of green energy is somewhat obscured– it's not, for example, part of Ant's categorization of green activities. But a quick look at *how* activities are logged into the Ant system shows that the vast majority of activities earn energy "per transaction" (fig.4). This is Ant's technologically innovative contribution to the science of "green activities" carbon accounting. Many of these transactions are routed through Alipay, for example by scanning a

QR code with Alipay on the bus to pay the fare, or by choosing the Alipay payment method when buying something online. Walking, because of ubiquitous accelerometers built into phones, is a relatively easy non-transactional activity for Ant to count, but other low-carbon behaviors remain unknown and invisible to the app, unless there is a transaction involved. It is the *transaction* that makes visible to Ant that a user reduced plastics by ordering takeout without plastic utensils, for example, or that they opted for a paperless train ticket. The transaction becomes *a way of knowing greenness*.

This way of knowing greenness has several implications for the integrity of greenness itself. First, "green" online transactions raise questions about the extent to which environmental externalities are fully internalized. Although the premise of environmental economics rests on the benefits of bringing into the economic system things that are traditionally externalities– here, carbon– Zeng (2018) has pointed out that Ant Forest encourages consumptive behavior whose environmental impacts remain hidden and unaccounted for. It encourages, for example, buying that utensil-less takeout meal, without considering the impacts of the takeout container or the energy used for the meal delivery. Transactions also show that what's "green" is shaped by specific business relationships. Most blatantly, some kinds of "green" transactions only earn energy when items are purchased from Alibaba- or Ant-owned businesses, such as paperless movie tickets from Taopiaopiao, energy-efficient home appliances from Tmall, or even banking loans from MYbank. In other instances, activities only count as green when conducted through partner, supported, or participating businesses. Although China is home to several bike-share companies, for example, users can only earn green energy by riding Hellobike, as that company is the only one with a relationship with Alipay and a connection on its platform. Similarly, to earn credit by turning down the disposable toiletries provided at hotels, you have to book at a Holiday Inn, Sunmei, or through Muniao (similar to the U.S.'s Airbnb). Most exorbitantly, if you'd like to get points for driving an electric car, you'll have to buy one from FAW-Volkswagen. Even getting points for filling your own reusable cup at a school cafeteria soda fountain is only possible if the

machine is made by a company partnered with Alipay. What counts as "green" thus begins to be shaped more by such business relationships than by what generates the greatest carbon reductions. This dynamic threatens to both fail to account for (and reward) all kinds of "invisible" low-carbon activities that lack a transactional connection to the Alipay platform, but also to encourage "green" behaviors that are hardly the lowest-impact option. I have no way to tell Ant, for example, that I ate leftovers for lunch from a reusable container, instead of ordering takeout at all.

So what outcomes *does* transaction as a technologically innovative way of knowing greenness offer? One, certainly, is the ability to verify that an activity happened (as opposed to self-reporting leftover lunches). But another may be economic. Certainly, "by transaction" green activities conducted through Alibaba-owned businesses directly generate revenue for the Ant enterprise. And although the specifics of any fees involved in green energy-eligible transactions remain opaque from the user perspective, Ant Group has disclosed that the majority of its revenue comes from transaction fees charged as a percent of sale volume to merchants.[51] These arrangements suggest that identifying greenness "per transaction" may have real financial benefit for the Group. Encouraging transactions through Alipay also furnishes Ant with large amounts of consumer data that can be used to enhance Alipay's many other product offerings on the platform or can be otherwise marketed for profit (Xiong and Meng 2018). Thus even green activities not counted "by transaction," such as walking, collecting paperless medical test results through the Alipay health platform, or accessing government services through the Alipay civic center platform, may offer Ant financial benefits through data collection or simply through increasingly directing users to the Alipay ecosystem for all their needs, transaction-based or not. Mr. Song,[52] an executive at one of Ant Forest's earliest partner foundations, told

[51] Ant Group. 2020. "Ant Group Co., Ltd. H Share IPO." https://www1.hkexnews.hk/listedco/listconews/sehk/2020/1026/2020102600165.pdf.
[52] This and all names of interlocutors in this chapter are pseudonyms, to protect those individuals' identities.

me he's not too familiar with Ant Forest's business model, but the project's origin story he relayed suggests how lucrative it is: at the time, Mr. Song's foundation was running a tree planting program in Inner Mongolia, funded significantly through online donations from individuals. Ant Forest was in its infancy, awarding green energy points for green activities, but nothing more. One day in December 2016 Ant Forest came to Mr. Song's office to talk about transforming that green energy into real trees. They had essentially no money– only about a one-million-RMB annual budget. Mr. Song's foundation agreed to support the project. One year later, Ant Forest had ten times the money. They turned around and began supporting Mr. Song's organization, paying them to help manage implementation (personal communication, Sept. 9, 2021). This suggests that Ant Forest indeed enjoys significant profit from its operations. Ant Forest and Alipay have thus constructed an epistemology of greenness wherein greenness is, to a significant extent, known through transaction and defined by business relationships; the result is likely increased accumulation of capital through transactions, at the ironic expense of fully accounting for environmental externalities.

Recognizing the political-economic relationships embedded in the Alipay platform that shape Ant's definition of "green activities" challenges Ant's portrayal– and carbon accounting's claim as a practice– of this accounting as a purely technical process. While Ant has yet to respond to multiple requests for information about their accounting methodology, the app's "planting guide," which lists how much energy a user earns from which activities, frames these equivalencies as scientific and technical by transparently naming the expert bodies responsible for the calculative techniques: the Beijing Environment Exchange (CBEEX, *Beijing huanjiaosuo*), The Nature Conservancy, "and others" (fig.5). Gifford (2020) has argued that just this sort of technical framing obscures the inherently political nature of the "three points of engagement" in forest carbon accounting. This depoliticizing process is a version of Tania Li's (2007) "rendering technical." Gökçe Günel(2019) has similarly defined "technical adjustments" as a kind of sleight-of-hand that transforms a moral problem into a technical one. Here, instead

of fully confronting the moral challenges of overconsumption, Ant offers a technical solution, using carbon accounting, that promises to address climate change even as it incentivizes certain consumptive behaviors defined as “green” by underlying political-economic relationships. Why does it matter that the definition of “green activities” in Ant Forest is political, rather than purely technical? It reveals that there is no such thing as universal “greenness;” rather, what counts as “green” is always particular and political. Understanding this definitional landscape is central to evaluating the extents and limits of environmental benefit that may result from schemes like Ant Forest.

Figure 7. Screenshot from the Ant Forest app, showing a sampling of green activities under the category of "green travel."

The banner reads, “collect low-carbon energy, easily plant a real tree”; the fine print below reads, “scientific calculations of carbon emission reductions and carbon credits for green energy provided by the Beijing Environment Exchange, The Nature Conservancy, and others.”

Planting Trees (for Carbon Futures?)

Ant Forest does not only produce greenness, however; it also produces forests of actual trees. It took me a long time– many months and hundreds of thousands of steps– to accrue enough green energy to plant a tree. The "prices" of trees, as of this writing, range from 18,000 to 198,000 grams of green energy, depending on the species and planting location. My tree, when it's planted (it's not yet planting season), will be a saxaul tree (*suosuo shu*), which specializes in growing in sandy, arid conditions, mostly across Central Asian deserts with cold winters (Thevs et al. 2013). My "planting certificate" specifies that seedling #HFB57277052265 will be planted somewhere in Wuwei Prefecture in the northwestern province of Gansu, in a project managed by the China Foundation for Poverty Alleviation (*Zhongguo fupin jijinhui*). Wuwei is already home to more than 50 other Ant Forest afforestation plots, ranging from about 7.5 acres to 1,300 hectares. Each can be located on a map in the Ant Forest app, some contiguous plots and others scattered across the countryside, like a slowly filling-in patchwork. Forest #354 (240 hectares, 399,600 trees) is equipped with a camera that supplies monthly photos to the app so users can check in on their trees (fig.6), an extra the app says Ant plans to expand across its forests. These camera images immediately make two things startlingly evident. First, this is not a forest. Or at least not in the lush sense that "Ant Forest" suggests. *Suosuo* is more of a shrub, as are many of the "trees" Ant plants, including varieties of tamarisk, pea shrub, sea buckthorn, shrub willow and hedysarum. In some locations, plants of somewhat more stature are selected, such as cypress, pines, and poplars. But second, the images (at least these ones) show that the shrubs, originally a collection of pixels on screens, are very much, undeniably, real. Now nearly four years old, they are surviving (at least these ones), stretching in rows across the reddish, sandy soil all the way to the horizon. The naming of "Ant Forest" communicates a lush ideal,

while images of tenacious *suosuo* construct these “forests” as in a very material (though perpetual) state of pursuing that ideal.

Figure 8. Screenshot from the Ant Forest app showing recent conditions at forest #354 in Wuwei, Gansu.

What role do trees (or shrubs) and their materiality play in realizing the ideal of a carbon-sequestering forest and in the political economy of Ant Forest? While above I argued that the political-economic relationships that constitute Ant Forest define green activities in a way that’s conducive to capital accumulation, in this section I explore how the translation of virtual trees into real ones opens the possibility of another route for capital accumulation: raising carbon sinks for marketization as tradable credits. And I find that in this speculative realm of accumulation from carbon futures, Ant Forest’s combination of finance and technology serves to

open the possibility of multiple linked "sites" of value production beyond the land and labor centered in traditional Marxian critiques of political economy.

Others who have followed the rise of Ant Forest alongside the construction of China's domestic carbon market have prophesied an eventual and spectacular entrance for Ant Forest into the carbon market. Zheng and Meng (2018) have predicted that Ant will, in a second phase of its business plan, sell emissions reductions to enterprises and individuals, and then, ultimately, create a globally-recognized individual carbon account system, so that individual users can participate in the carbon market. "The future development of Ant Forest will be limitless," they write; "when China's carbon trading market matures, Ant Forest will rely on its user stickiness to achieve large-scale profit" (Zheng and Meng 2018, 129). In one industry report on China's carbon market (Environomist 2017), Ant Financial Services Group itself, one of the report sponsors, confirms that "in the future, the Voluntary Emission Reduction (VER) trading mechanism commonly adopted in the world will be used" (ibid., 16), and that the individual carbon accounts may be incorporated into the China Certified Emission Reduction (CCER) system. And while Ant's stated vision is a democratic one where Ant Forest becomes "a carbon account for the individual to conduct carbon trading and investment in the carbon market" (ibid., 16), elsewhere the report points out that in addition to carbon accounting (which could create credits traded by individual users), Ant Forest also generates its own carbon assets, in the form of trees (ibid., 131).

Indeed, China's developing carbon market and, in particular, growing carbon forestry sector, could present a ripening opportunity for Ant. China launched Emissions Trading System (ETS) pilots in seven cities in 2011, and expanded to a national ETS in 2017 (Lu et al. 2019), though trading did not begin until July 2021.[53] Although this compliance market, which trades

[53] *Xinhua Net*. 2021. "The Online Trading of the National Carbon Emission Trading Market Was Officially Launched; Han Zheng Attended the Launching Ceremony (*quan guo tan paifang quan jiaoyi shichang shangxian jiaoyi zhengshi qudong; han zheng chudi qudong yishi*)." July 16, 2021.

carbon emission allowances, currently only enrolls the power generation industry, its 2,162 emitters already make it the largest carbon market in the world;[54] plans for the market call for incorporating seven other major industries (petrochemical, chemical, construction materials, iron and steel, non-ferrous metals, papermaking, civil aviation) over time. Carbon credits, including credits from forestry projects, can be traded either on the national ETS (compliance) market, or on the voluntary carbon market (Lu et al. 2019). The national voluntary market is run through the China GHG Voluntary Emission Reduction (VER) Program, which operates a registry of certified credits (launched in 2015) and governs the China Certified Emission Reduction (CCER) as the certification standard for credits (EDF and Sinocarbon 2020). The VER Program was suspended in 2017 for updates and improvements, but is expected to relaunch, possibly in 2022.[55] In addition to the CCER, other international standards register offset credit projects in China, for trade on the international voluntary carbon market. One Senior Associate at a U.S.-based organization that tracks voluntary carbon markets described these markets as lacking transparency– they're not run by any regulatory body, and there's little information, except through her organization, about who buys these credits and how much they're paying. But the market, she says, is growing. Most end users of voluntary credits seem to be buying to satisfy corporate carbon neutrality promises, but many credits are first bought by middlemen, many of whom are buying up cheap credits now, banking on future market growth (personal communication, Feb. 2, 2022). A former employee at a dominant voluntary carbon standards organization that registers projects in China and around the world reported a particular rise in forestry projects in China, including in both the afforestation/reforestation (A/R) and the

[54] *Xinhua Net*. 2021. "The Online Trading of the National Carbon Emission Trading Market Was Officially Launched; Han Zheng Attended the Launching Ceremony (*quan guo tan paifang quan jiaoyi shichang shangxian jiaoyi zhengshi qudong; han zheng chudi qudong yishi*)." July 16, 2021. http://www.xinhuanet.com/2021-07/16/c_1127663779.htm.

[55] Yin, Ivy, Eric Yep, and Norazlina Jumaat. 2022. "Commodities 2022: China's Carbon Market to Expand, Build Capabilities." S&P Global Comodity Insights. January 6, 2022. https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/energy-transition/010622-commodities-2022-chinas-carbon-market-to-expand-build-capabilities.

improved forestry management (IFM) categories (personal communication, Feb. 8, 2022). Data from Ecosystem Marketplace, a project that collects information on voluntary carbon credits, indicate an over 800% jump in registered credits (notably, this database does not include CCER-registered projects) from the number issued in 2018 to those in 2021. The majority of projects are in energy production or conservation, but the share of credits from forestry during that time has grown from about 6.7% to over 22%.[56]

This remarkable increase in carbon marketization of forestry in China is supported by climate change and forestry policy developments. Following China's 1998 initiation of a vast and decades-long program to ban commercial logging across large swaths of the country, the State Forestry Administration opened an Office of Carbon Sink Management in 2003. In 2009, Premier Wen Jiabao declared in a climate change taskforce speech that forestry had an important role to play in addressing climate change (Lu et al. 2019). Forestry indeed became a key part of China's plan to achieve its Nationally Determined Contribution; in 2019 Premier Li Keqiang announced that China had actually already met the forestry part of its NDC, eleven years ahead of schedule (Sandalow 2019). Goals for increasing forest coverage have featured consistently in the last several national Five-Year Plans, including, most recently, a target in the 14th Five-Year Plan to increase forest coverage from 23.4% in 2020 (above the 23% goal from the 13th Five-Year Plan) to 24.1% in 2025.[57] China's National Development and Reform Commission has reported that the nation planted 15 million hectares of forest from 2011 to 2015, and another seven million hectares annually from 2016 to 2018 (Sandalow 2019).

To return to the kind of work Ant Forest is doing, part of this massive drive for afforestation is happening in the private sector and NGO space, supported by the policy priority of afforestation and likely driven by possibilities for commodification in the market growth

[56] "Forest Trends' Ecosystem Marketplace Global Carbon Markets Data Intelligence & Analytics Dashboard - Public Version 1.0." 2021. 2021. https://data.ecosystemmarketplace.com/.
[57] *Carbon Brief*. 2021. "Q&A: What Does China's 14th 'Five Year Plan' Mean for Climate Change?," March 12, 2021. https://www.carbonbrief.org/qa-what-does-chinas-14th-five-year-plan-mean-for-climate-change.

described above. NGOs have been starting what Li and Yang (in Lu et al. 2019) call “public voluntary forest carbon projects” since 2008. In these projects, companies or individuals donate money for a carbon forestry project, often through an NGO foundation, and an implementing organization partners to put the project into action. The donation works similarly to purchasing a carbon offset, in that donors primarily gain from the transaction by satisfying social responsibility. This model seems to be proving quite attractive– China Green Carbon Foundation, an early player in public voluntary forest carbon projects, collected almost 800 million RMB in donations from enterprises and the public between 2007 and 2016, resulting in over 2.1 million acres of carbon forests across 21 provinces (Lu et al. 2019). Li and Yang conclude that “the public voluntary carbon project has become an innovative carrier for companies to fulfill their social responsibilities and display corporate image” (ibid., 240). And yet the predictions of Ant’s entrance into the carbon market suggest that private sector carbon forestry is not solely about corporate image.

Wang Yao, Dean of the International Institute of Green Finance at the Central University of Finance and Economics in Beijing, has written that Ant Forest has the ability to generate “new value” (Environomist 2017). Where does this new value come from? Whereas much of green finance only shifts resources from, say, polluting investments to greener options, Wang points to technology and digital finance as driving “low-carbon consumption” to generate this new value. I suggest that, in Ant Forest, this consumption is happening both in users’ “green” consumptive behaviors, which, for Ant, conjure new value through increased number and volume of monetary transactions, as discussed in the section above, and in the imagined future consumption of forest carbon credits. Marxian analyses seeking to explain generation of new value often reference and extend Marx’s (*Capital Vol. I*) “primitive accumulation” to find ongoing instances of violent alienation of a population from the means of production, and their subsequent forced dependence on an exploitative wage labor relation, at the root of accumulation. Indeed, many studies of carbon credit production have found such projects to rely on just this kind of

"accumulation by dispossession" (Harvey 2003). Cavanagh and Benjaminsen (2014), for example, have found that a carbon offset and conservation project in Uganda yielded capital accumulation derived from violent local land dispossession; Milne and Mahanty (2019) have similarly chronicled how "bureaucratic violence" against local and indigenous groups underwrote capital accumulation in a REDD+ project in Cambodia.

It's unclear whether this kind of land dispossession, paired with exploitation through the wage-labor relation, describe sources of value generation in carbon forestry projects like Ant Forest, though the model does threaten a new, similar form of dispossession. Land dispossession would depend on the preexisting land tenure designation at Ant sites, which likely vary from afforestation plot to plot, and on the specifics of any compensation offered in return for Ant's land use rights. Ant and its partner implementing organizations do employ area residents for planting and maintenance of afforestation projects (and boast they've created more than 650,000 green industry jobs in this way),[58] but similarly, only details of the terms and conditions of this employment would illuminate any wage-labor exploitation. For Mr. Yang, a lawyer specializing in rural land tenure in China, who works for a U.S.-based land rights advocacy group, what *is* worrisome is that rights to sequestered carbon are currently not clearly guaranteed to rural households. He predicts forest offsets will become an important piece of how China will achieve its carbon neutrality by 2060 goal, and that credits will become tradable on the national ETS; he wants to make sure rural residents can benefit when these things happen (personal communication, Feb. 13, 2022). Yang's worries about rights to carbon suggest a threat of something akin to what Robert Nichols (2020) understands as the "recursivity" of land dispossession, where the land is first taken, then recursively made into a thing that can be owned (propertized), and finally assigned ownership, evidencing a reality that "what belongs to no one can in fact be stolen" (ibid., 34). In this stage of "enterprising nature," it

[58] "Alipay Sustainability Report 2019-2020: Towards a Better Society for the Future." 2020. Ant Group, Alipay. https://gw.alipayobjects.com/os/bmw-prod/e39c99c2-0193-40fc-8265-cf4f72a8367e.pdf.

is not land, but rather carbon that is only beginning to be understood as property, and people who steward forests, or, in the case of Ant Forest, land that could support a forest, are particularly vulnerable to this kind of recursive carbon dispossession.

The Ant Forest model, because of its engagement with fintech, also opens additional sites of value production, sites of *extraction*, beyond this land-like carbon property. Mezzadra and Neilson (2019) identify extraction as a defining characteristic of contemporary capitalism, but they don't mean only mining of natural resources– rather, they take extraction to encompass "extractive turns" in all sorts of industries, resulting in things like "data mining," virtual "gold mining" and, I would argue, carbon forestry, where the industry of forestry (extractive even in original form) is, in certain places, being transformed by extraction of the new commodity of carbon. Building on Rosa Luxemburg's (1913) observation that capital's expansion requires "outside markets" and David Harvey's (2003) that capital relies always on something "outside of itself," Mezzadra and Neilson argue that extractivism seeks these "outsides" that capital has a "structural need" for. With an expansive understanding of extraction comes also an understanding of capital's "outsides" as not strictly territorial. Finance, Mezzadra and Neilson argue, with its particularly speculative logic, seeks not-necessarily-territorial outsides assiduously. Following this description of the growth of finance (financialization) as extraction from novel "outsides," I understand carbon and emissions reductions as just such outsides attracting speculative, financial extraction. This kind of extraction, as Mezzadra and Neilson spin out, requires also a broad definition of exploitation and alienation as "the missing control by producing subjects of the objective conditions of their lives and labor" (2019, 203). In looking for such produced subjects, Bakker (2010) has called for increased attention to non-humans and diverse socio-natures (as understood by Swyngedouw 1996) as important political subjects for explaining the workings of "neoliberal natures." From this perspective, it's worth pointing out that although the labor of planting and maintenance is crucial for the production of a carbon forest, no amount of watering of the earth will make a carbon forest without the participation of a tree's

productive power. This fact is evident in analyses of failed schemes to marketize nature that point to “unruly natures” (Knuth 2014) or otherwise uncooperative ecosystems (e.g. Robertson 2006). Crucially, what makes the productive power of the socio-nature of carbon forests valuable is the speculative logic of finance, paired with techniques of accounting. Recalling Durand’s (2017) definition of finance as “an accumulation of drawing rights on wealth *that is yet to be produced,*” the logics of finance make it possible to sell carbon credits from trees that have barely set roots in the ground, while techniques of accounting conjure at least a mirage (as described above) of scientific certainty that the carbon reductions will materialize.

And there’s yet a third site of possible extraction in Ant Forest’s model: the app users. Although it may not be fair to characterize these producing subjects as fully exploited, without control “of the objective conditions of their lives and labor,” there remains an extractive aspect of their involvement. Although when I exchanged “green energy” for a tree it felt like a fair purchase (and an accomplishment), in reality it was more of a gift– of the transactions whose revenue may contribute to Ant Forest’s purchase of carbon-sequestering *suosuo* saplings and planting and maintenance labor-power. In return, I enjoy nothing but a feeling of environmental benevolence. While, as Carton and Andersson (2017) have argued, the production of the carbon credit commodity works as an example of the subsumption of nature by capital, this aspect of accumulation through exploitation of environmental benevolence suggests, as Neil Smith (1984) has posited, that *human* nature experiences subsumption as well, meaning that shifts in social relations are accompanied by shifts in relations with nature. In the case of Ant Forest, it seems, a social relation involving accumulation via environmental benevolence may be emerging along with the neat rows of *suosuo* shrubland. Technology is key to creating and maintaining this social relation: in addition to efficiently and verifiably counting green activities “by transaction,” it delivers the animated images of each user’s enticingly growing sapling on their Ant Forest home screen that make it clear they’re doing something *good*; it automates official, pride-inducing planting certificates; it increasingly offers satellite-image monitoring that

evokes a sense of stewardship and care-taking, even over distances between app user and afforestation plot.

Technology, through its ability to build links across space, even generating environmental benevolence in the everyday spaces users, with their phones, inhabit, and finance, through its speculative logics and appetite for novel "outsides," thus open new sites of possible extraction and value production in Ant Forest. This suggests such multiple sites of extraction as an important outcome of applying fintech approaches to carbon credit production and other projects of "enterprising nature." In some ways, this advent of fintech in carbon forestry makes the materiality of trees– their property of sequestering carbon– less relevant. As Gifford (2020) has observed, the speculative aspect of forest carbon offsets (what I would see as a mode of finance) allows them to generate value even when forests do not thrive and carbon reductions fail to *materialize*. To drive the point home, insurances for failing carbon forests will pay out the value of the offset, but leave the trees dead, thus insuring profit but not emissions reductions themselves (Gifford 2020). But in other ways, materiality remains indispensable. Finance and speculation, after all, rely on trust, the kind of trust generated by camera-surveilled, growing shrubs. It's this phenomenon that Tsing (2000) terms the "economy of appearances," where financialized extraction (for Tsing, in the more traditional example of gold mining) depends on spectacle to generate speculative investment. This is how trees and users both become novel sites of extraction– not through material sequestration of carbon or material performance of labor, but through their production and consumption, respectively, of spectacle. *Extraction through spectacle* thus suggests that fintech may *shift* the role of materiality in carbon forestry capital accumulation, away from real carbon reduction and toward an economy of trust. This trust is a key ingredient in the outside-seeking expansion of fintech-enabled carbon forestry. Expansion, however, operates not in a vacuum, but in relation with other socio-economic dynamics and actors, including the state.

Ordering Capital

Ant Group's initial public offering (IPO) on the Shanghai and Hong Kong exchanges, slated for early November, 2020, was supposed to be a big deal. In the run-up to it, even Western financial news outlets buzzed with anticipation. Predicted by analysts to raise in the range of $34 to $37 billion USD, Ant was poised to pull off the largest sale of shares in history. But two days before the debut, the Chinese central state blocked the IPO. Regulators cited opaque accounting practices at Ant that could be hiding risky loans, and high consequences if there were problems, given the company's size. Next steps were handed down quickly: regulators required Ant to produce a "rectification plan" to restructure the business.[59] Requirements included creating a separate financial holding company subject to the same regulations applied to banks and also breaking Ant's "information monopoly" on its vast collection of consumer information gathered from transaction behavior. These moves opened investment opportunities for other actors, decentralizing wealth and power from Ant.[60] Finally, regulators slapped Alibaba (Ant Group's affiliate) with a $2.8 billion USD antitrust fine.[61] Asset manager Fidelity's valuation of Ant Group slid from $235 billion USD before the IPO to $144 billion in February 2021 to $78 billion in June all the way to $67 billion in July.[62]

Up to this point, I have considered how capital accumulation in Ant Forest articulates with definitions of greenness and with carbon futures. This most recent chapter of Ant's story

[59] Prasad, Eswar. 2021. "Opinion | Jack Ma Taunted China. Then Came His Fall." *The New York Times*, April 28, 2021, sec. Opinion. https://www.nytimes.com/2021/04/28/opinion/jack-ma-china-ant.html.
[60] Calhoun, George. 2021. "The Sad End Of Jack Ma Inc." *Forbes*, June 7, 2021, sec. Markets. https://www.forbes.com/sites/georgecalhoun/2021/06/07/the-sad-end-of-jack-ma-inc/.
[61] Zhai, Keith. 2021. "Alibaba Hit With Record $2.8 Billion Antitrust Fine in China." *The Wall Street Journal*, April 10, 2021, sec. Business. https://www.wsj.com/articles/alibaba-hit-with-record-2-8-billion-antitrust-fine-by-chinas-market-regulator-11618018830.
[62] *Bloomberg.com*. 2021. "Fidelity Cuts Ant Valuation Again as China Crackdown Spreads," September 8, 2021. https://www.bloomberg.com/news/articles/2021-09-08/fidelity-cuts-ant-valuation-again-as-china-crackdown-intensifies.

makes abundantly clear that no political-economic analysis of Ant or, by extension, Ant Forest, can be complete without serious consideration of the role of the state as well. In fact, I began in the first section of this chapter with a detailing of how central state policy has helped generate the conditions for something like Ant and its combinatorial powers to arise. Here, then, I return full circle to the state, but find a paradox: what to make of this seemingly contradictory role of the state?

The role of the state in contemporary capitalism, including in the world of finance, vexes many analyses. Mezzadra and Neilson (2019) have puzzled, for example, over how capital can operate so globally (although with historically and geographically specific variegations) without a corresponding spatial world-order like the empire or the nation-state. Capital on the one hand often appears to spurn such spatial boundaries, and yet its processes remain shaped by conditions of the nation-state. The IPO twist in Ant's story of course highlights the latter. Does this episode demonstrate that in China, the power of the state is greater than that of capital?

Much Western financial news media suggests this is the case. These stories portray the IPO cancellation as an authoritarian assault on freedom, wrapping individual freedom of expression and market freedom into one. This is accomplished through a common narrative that draws a clear line between the IPO cancellation and a particular speech given by tech business magnate Jack Ma (Ma Yun) shortly beforehand. The speech in question occurred in late October 2020, at a financial conference, the Bund Summit, in Shanghai. Ma, one of the richest people in the world, co-founded and was formerly executive chairman of Alibaba; he is now retired from Alibaba and plays no formal role in Ant Group's management, but owns a stake in and exercises influence over both. On that day behind the microphone, Ma delivered a vision for a "future-oriented" version of finance in China. He criticized what he saw as innovation-stifling over-regulation of the sector by the central government and argued for abandoning the "pawnshop" mentality of requiring collaterals and deposits for loans, in favor of using technology and big data to assess credit worthiness. "We cannot manage an airport in the way of managing

a train station," he said. "And we cannot manage the future by using the way of managing the past."[63] Days later, the IPO was suspended. *CNN Business* declared, "Beijing just yanked Ant Group's IPO to show Jack Ma who's really in charge."[64] *Bloomberg* explained "How Xi and the CCP Turned on Jack Ma, Ant and China's Fintech Companies."[65] A *Forbes* article simply lamented "The Sad End of Jack Ma Inc."[66]

While political retribution may well be at play in these events, consideration of recent trends in finance regulation in China suggest a somewhat more coherent strategy than simply reactive authoritarianism. Earlier in 2020, an effort to scrutinize under-regulated, risky online lenders was already well underway in China, and by late September of that year, the number of such operations had reportedly been reduced from around 5,000 to only six.[67] And Ant gained more company in finding itself the subject of new regulatory constraints in April 2021, when regulators extended the same regulatory restrictions Ant faced to the financial wings of 13 other major fintech companies, including Tencent Holdings Ltd. (of WeChat), ByteDance Ltd. (of TikTok), e-commerce giant JD.com, food delivery and other local services platform Meituan, and ride-hailing company Didi Chuxing.[68] These events place Ant's IPO debacle in a broader context of finance reform in China, and suggest that the central state, in pulling the IPO, pursued a strategy beyond, or in addition to, simple quashing of individual freedom of expression.

The aftermath of the IPO suspension points to one possible such strategy: an effort to shift power over capital toward the central state. As noted above, Ant's required restructuring

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[63] To see a full video of this speech: https://zhibo.sina.com.cn/finance/68307

[64] CNN. 2020. "Analysis: Beijing Just Yanked Ant Group's IPO to Show Jack Ma Who's Really in Charge." *CNN*, November 4, 2020. https://www.cnn.com/2020/11/04/tech/ant-ipo-beijing-china-intl-hnk/index.html.

[65] *Bloomberg.com*. 2021. "China Crushed Jack Ma, and His Fintech Rivals Are Next," June 24, 2021. https://www.bloomberg.com/news/articles/2021-06-24/how-xi-and-the-ccp-turned-on-jack-ma-ant-and-china-s-fintech-companies.

[66] Calhoun, George. 2021. "The Sad End Of Jack Ma Inc." *Forbes*, June 7, 2021, sec. Markets. https://www.forbes.com/sites/georgecalhoun/2021/06/07/the-sad-end-of-jack-ma-inc/.

[67] Zhong, Raymond. 2020. "In Halting Ant's I.P.O., China Sends a Warning to Business." *The New York Times*, November 6, 2020, sec. Technology. https://www.nytimes.com/2020/11/06/technology/china-ant-group-ipo.html.

[68] *Fortune*. 2021. "Beijing Using Its Ant Group Playbook to Crack down on 13 Other Tech Firms," April 29, 2021. https://fortune.com/2021/04/30/china-tech-crackdown-ant-group-jack-ma-tencent-bytedance-meituan-jd-com-didi/.

opens opportunities for other investors; many investors benefiting so far are state-owned. As of this writing, Ant has spun off two companies in the restructuring process, Chongqing Ant Consumer Finance, the new home of Ant's two microlending businesses, and Qiantang Credit, a personal credit scoring enterprise. The consumer finance company is 50% owned by Ant; the state-owned China Cinda Asset Management Co. bought a 20% stake in December 2021. Cinda later backed out, but effectively still owns a 15% stake through their subsidiary who remains in the ownership structure, Nanyang Commercial Bank. The state-owned Yufu Capital, Sunny Optical Technology and Boguan Technology also hold smaller stakes. Ant's second, credit scoring spinoff is a proposed joint venture with the state-backed Zhejiang Tourism Investment Group, with 35% owned by each.[69]

Given Ant's devaluation, state-owned enterprises casting their lot with the Ant family of businesses may seem like folly. But, as Ching Kwan Lee (2017) has found in the context of overseas Chinese development, Chinese private and state capital operate according to different logics. Advancing the concept of "varieties of capital," Lee observes that state capital's motivations and goals are broader than and irreducible to private capital's aim of profit maximization. In Ant's restructuring, too, it seems that state capital is behaving according to some different logic. We may begin to access this logic through an examination of a term trending in official discourse: *disorderly capital*.

[69] *South China Morning Post*. 2021. "Ant Seeks Nod for Credit-Scoring Joint Venture with State-Backed Partners," November 26, 2021, sec. Business. https://www.scmp.com/business/banking-finance/article/3157557/ant-group-applies-chinas-central-bank-set-personal-credit;
Reuters. 2021. "Ant Group Consumer Finance Unit in Chongqing Wins Operating Approval." *Reuters*, June 3, 2021, sec. Technology. https://www.reuters.com/technology/ant-group-consumer-finance-unit-chongqing-wins-operating-approval-2021-06-03/;
PYMNTS. 2021. "State-Owned Entities Backing Chongqing Ant," December 27, 2021. https://www.pymnts.com/news/investment-tracker/2021/state-owned-entities-backing-most-of-3-5b-for-mas-finance-arm-chongqing-ant/;
Reuters. 2022. "China's Cinda Scraps $944 Mln Investment into Ant's Consumer Finance Unit," January 14, 2022, sec. China. https://www.reuters.com/world/china/chinas-cinda-scraps-944-mln-investment-into-ants-consumer-finance-unit-2022-01-13/.

"Preventing disorderly expansion of capital" (*fangzhi ziben wuxu kuozhang*), whose frequency of appearance in central-state documents and speeches began increasing at the end of 2020, following Ant's IPO suspension, is about preventing monopoly, but also about creating the conditions for a beneficial variety of innovation, specifically *materially productive innovation*. A December 2020 government report explaining the "spirit" of preventing disorderly capital goes to some pains to recognize the importance and usefulness of the platform economy– preventing the disorderly expansion of capital is about regulation and support, not destruction, of this sector– but identifies monopoly as a significant problem. Disorderly expansion of capital, it explains, through monopoly, stifles competition and therefore innovation. Further, this disorderly capital is forever grubbing for "volume" (*liuliang*), investing in getting clicks, likes and monetizable eyes on content, rather than investing in "original and basic innovation."[70] Clicks and likes, of course, are highly productive of value for platform economy companies, but not good, the document explains, for long-term scientific and technological progress and development. This distinction, I would argue, identifies the difference between, in Marxian terms, investing in a commodity that has both use and exchange values, and investing in something (a financial product) that only holds exchange value. A January 2022 statement on "Promoting the Standardized, Healthy and Sustainable Development of the Platform Economy," jointly released by nine central-state agencies, explains that this healthy and sustainable development will happen through greater supervision of the financial sector.[71] It particularly calls out "inclusive finance" and "financial innovation" as questionable claims that have helped the sector to avoid supervision. Together, these documents suggest central-state wariness about

[70] "Interpretation of the Spirit of the Central Economic Work Conference: Preventing the Disorderly Expansion of Capital (*jiedu zhongyang jingji gongzuo huiyi jingshen: fangzhi ziben wuxu kuozhang*)." 2020. Central People's Government of the People's Republic of China. December 27, 2020. http://www.gov.cn/xinwen/2020-12/27/content_5573663.htm.

[71] "Innovative Supervision Promotes the Healthy Development of the Platform Economy (*chuangxin jianguan tuidong pingtai jingji guifan jiankang fazhan*)." 2022. National Development and Reform Commission. January 19, 2022. https://www.ndrc.gov.cn/xxgk/jd/jd/202201/t20220119_1312338.html?code=&state=123.

financial innovation and its benefits to society, especially when unregulated. “Preventing disorderly expansion of capital” thus presents as a central state economic logic that aims to shape innovation away from clicks and likes and towards more material productivity. It is this logic that heavy-handed regulation of the fintech sector and shifting of capital to state ownership appear to be working under.

The central state’s suspension of Ant’s IPO, then, is not only about authoritarian constraints on freedom (or the state being simply more powerful than a unified “capital”), nor only a state capital-grab, but also a moment in the development of a more extensive economic strategy– exemplified by “preventing disorderly expansion of capital”-- that is somewhat suspicious of finance, seeks investment in more tangible innovation, and sees that innovation thriving best in a more regulated environment that preserves conditions for competition. In this light, the role of the state isn’t as contradictory as it first appears. Both creating the conditions for fintech to develop and regulating its capital accumulation play into an economic strategy to foster innovation through competition, avoiding disorderly capital. This articulates well with Arboleda’s (2020) conception of the state as a “mode of capital’s existence.” It’s not that fintech capital and the Chinese central state are at odds so much as it is that fintech capital exists through the state– born of its supporting policies and always developing through its logics, including the logic of preventing disorderly capital.

What does the IPO suspension and this complex role of the state mean for Ant Forest in particular and its “carbon futures?” We can partially infer this from Ant’s 2020 Sustainability Report, published in 2021 while required restructuring was getting underway. In defiance of all the predictions and market analyses that Ant would strike it rich on its tree planting campaign, and backtracking on Ant’s own earlier statements about entering the carbon market, this document claims that green energy points in Ant Forest are “not meant to be used for any carbon trading or offsetting,” and that Ant has committed to never using these for corporate carbon benefit. If these points have real carbon value in the future, Ant now says, the value will

belong to users. “So far,” it promises, “Ant Forest has never participated in carbon sink trading.” And as for the trees themselves: they belong to “the country and society;” Ant and its partners have agreed that if the trees generate valuable carbon sinks, they will be “used for public welfare.”[72] Despite some vagaries around who precisely owns the trees and may benefit from their sequestered carbon, this remarkable shift significantly limits the capital accumulation potential of any “carbon futures” for Ant. As with the broader strategy of “preventing disorderly expansion of capital” in the fintech sector, these changing fortunes for Ant Forest carry a certain flavor of authoritarianism; shifting of capital to state control could also be at play in a transfer of forest carbon value to “public welfare.” These statements further hold echoes of the broader shift away from financial to material investment and innovation: Ant points out that most of its trees are really shrubs, and writes that current methodologies don’t estimate shrub sequestration well (despite, again, previous claims that the scientifically calculated green energy necessary to plant a tree is equivalent to its sequestration power). Instead, Ant emphasizes that these shrub “forests” are for desertification control, something quite material when compared with the financial product of an offset. The role of the state in processes of capital accumulation in Ant Forest and in fintech broadly is undeniably strong, but also complex in its efforts to both promote and regulate the sector, especially through an attempt, whose outcomes have yet to fully form, to shift the focus of innovation.

What Is the Carbon Future?

[72] “2020 Sustainability Report: Digital Responsibility and Green Development, Building a Better World Together.” 2021:36. Ant Group. https://www.antgroup.com/en/news-media/media-library?type=Sustainability%20Report.

All this raises some thorny questions about the future of carbon (and carbon futures, in the financial sense) in China. If, indeed, the Ant IPO episode reveals central-state hesitance over an increasingly financialized economy, will the government, in pursuit of its carbon peaking and neutrality goals, shift towards direct emissions reductions, rather than an offset strategy? In light of high energy demand in China and continued building of coal-fired power plants, some have predicted that offsets, and forest offsets in particular, could play a significant role in achieving the carbon timeline. One study, for example, recently estimated that in 2020 forests in China sequestered 13-17% of the country's industrial carbon dioxide emissions in that year, and that above-baseline sequestration in that year (increased sequestration due to central-state climate forestry policy) reached 3.16 billion tons (Jin et al. 2020). This suggests that the potential of forests, and additional efforts to expand and improve them for sequestration, to contribute to carbon goals is high. But offsets, as argued above, operate as forms of finance, where carbon futures are bought and sold, sometimes with questionable, if not downright negligible, impacts on actual atmospheric carbon concentrations. How will financialization shape China's pursuit of carbon peaking and neutrality, and to what effect on the climate?

In this paper, I have argued that fintech's entrance into the pursuit of environmental goals promises a "combinatorial power" wherein the elements of finance, technology and greenness will "unlock" and overcome environmental challenges. The case of Ant Forest shows that the nature of this combinatorial power, however, may lie not in achievement of environmental goals (reductions in atmospheric carbon), but rather in capital accumulation. Here, fintech powerfully redefines greenness "by transaction" to make it profitable, at the expense of emissions reduction integrity. In the context of growing carbon markets and the possibility of value production through carbon forestry, I have argued that fintech has the power to open multiple, novel sites of extraction. Ant Forest also demonstrates, however, extensive entanglements between fintech and the state, where fintech's quest for accumulation, operating through the state, is shaped by logics of "preventing disorderly capital." Fintech, this paper

argues, *is* powerful. But commitment to actually achieving environmental goals, rather than only paving fresh roads to capital accumulation, calls for greater attention to what kind of power fintech wields, and to what ends it is exercised in the context of an increasingly capitalized nature.

CONCLUSION

In this thesis I have examined approaches to environmental challenges in China through the two lenses of translation and accumulation. In the first chapter, I developed an analytic of "translation" to investigate how definitions of nature and ideas about how to practice conservation travel, using the case of Western-connected conservationists who work to influence national park policy in China, with patchy and sometimes surprising effects. Contributing to work on the relationship between definitions of nature and conservation policy, I first argued that affective understandings of "intimate nature" are a key factor in that relationship, and constitute the starting point for "translation." The nature/culture binary attributed to institutionalized Western conservation practice (and its often-observed effects of dispossession) is motivated by affective "intimate nature" experiences. The powerful positions held by these conservationists, however, highlight how affect works within particular political arrangements, which explains why these conservationists (and not others) have access to policymakers in China to shape how conservation happens. This means affect can play an important, if under-recognized, role in reproducing hegemonic versions of conservation.

The case of national parks in China, however, raises questions about just how hegemonic or unified "Western conservation" really is. Translators' diplomatic "speech strategies" when in communication with Chinese counterparts show how, from micro-level turns of phrase, a monolithic "globalization" model to describe how ideas spread would fail to capture the give-and-take in such exchanges. Western-connected conservationists instead employ complex framings to at once exert influence and navigate a field of political power where they lack, and do not try to claim, full hegemony. This lack of unified Western conservation hegemony can also be seen in how only certain aspects of Western-connected "translators'" definitions are picked up in Chinese national park policy documents. Parks as a "national nature," standing for national pride and representativeness, is particularly picked up in these

policy documents. With “national nature,” a particularly defined “public” emerges as those who benefit from parks. But this “public” fails to include everyone (and especially local residents). In the case of at least one park in Qinghai province, this kind of nature, nationalized to benefit only a limited “public,” interacts with pre-existing political processes to contribute to an ideological and material territorialization of Tibetan lands. Another aspect of national park definitions that is taken up is the prioritization of ecological conservation. But again, this aspect lands within a specific political context, where ecological optimization slots into preexisting policy directions towards national-scale spatial planning. Again, this contributes to a process of territorialization that promises to reorganize land use across the country, with potential enduring effects for residents where land uses change.

What gets “picked up” in this process of translation thus shows translation to happen in a deeply political terrain, rather than a void. There is no such thing as uncomplicated “direct translation;” instead, translation is always contextual, non-linear, and not a one-way street. This matters for how resulting practices may support or compromise justice in conservation practice. Part of the political translation terrain, importantly, is affective; while this work shows how affect contributes to supporting a (partially) hegemonic conservation, it also suggests how affect may be key to mobilizations to address biodiversity loss in other ways. What other versions of “intimate nature” could be amplified to contribute to such a project?

In the second chapter, I turned to accumulation, and the environmental-economic premise that valuing nature will save it or, in the case of valuing carbon, meaningfully contribute to reducing atmospheric carbon concentrations. In particular, I took up the tree planting scheme known as Ant Forest to investigate the role that a combination of finance and technology (fintech) play in making the strategy of valuing nature both effective and just (or not). I first examined how Ant Forest emerged from a recent policy history of support for green finance, tech’s role in the economy, and finally fintech. I identified the promise of fintech’s “combinatorial power”-- that it can achieve things for the environment and the economy that neither element

alone can– as a claim that deserves assessment and as the object of my analysis. I then examined the techniques Ant Forest uses to count carbon reductions from users' logged "green activities," and found that most loggable activities are counted "by transaction," where the transaction becomes a verifiable way of knowing (and defining) greenness. This way of knowing greenness compromises the integrity of carbon emissions reduction claims, but nonetheless offers opportunities for capital accumulation for Ant. Further, "by transaction" carbon counting is entangled with business relationships that additionally constrain what counts as green and direct capital to Ant and affiliated businesses. Such arrangements reveal Ant Forest's carbon accounting techniques to be highly political, even as they are billed as "scientific."

I then (speculatively) addressed speculative investment in trees as carbon credit producers as a possible second mode of capital accumulation in Ant Forest. I found that the Ant Forest model offers several novel sites of value production, beyond those of land dispossession and labor exploitation typically emphasized in the Marxian tradition. These novel sites arise from Ant Forest's engagement with finance and technology, suggesting that fintech's entrance into the realm of carbon credit production, and environmental economics broadly, may herald new forms of extraction and vulnerability. I finally turned to the role of the state in fintech-enabled accumulation-through-environmentalism. I considered the Chinese central state's recent stringent regulation of Ant and fellow fintech firms through policy that opposes "disorderly expansion of capital." I argued that this policy logic suggests not just central-state avoidance of monopoly, but also suspicion of some forms of finance and a desire to support innovation that is more materially productive. This begs questions about to what extent China, in pursuit of carbon peaking and neutrality, will turn toward direct emissions reductions, versus relying on speculative offsets.

* * * * *

These two chapters' forays into environmental translation and accumulation in China point to several areas for future research. In the introduction, I introduced two streams of inquiry that parks and trees together generate: the role of frontiers (broadly understood) in approaches to environmental challenges, and the ubiquity of "production of nature" processes, even in projects termed "conservation." These two streams represent trends in approaches to environmental challenges in China today and raise additional questions for further research.

Frontiers and the Reproduction of State and Capital

Frontiers can be thought of as imaginaries that correspond to physical locations. But as environmental historians and political ecologists have long pointed out, these imaginaries can powerfully feed dispossession and territorial aims of the nation-state (e.g. Cronon 1996). This is the relationship explored in chapter one's discussion of "national nature" in Chinese park policy, where the emphasis on this aspect of national parks supports an ongoing project of state territorialization. In chapter two, frontiers hover in the background as well, but in a different guise. Just as settlers, and perhaps national park planners, seek frontiers to strengthen and reproduce the state, so, too, does capital seek another kind of frontier to reproduce itself. As Mezzadra and Neilson (2019, 33) have articulated, using "frontier" in relation to capital emphasizes "the sense in which something always remains beyond capital's grasp– some activity or substance that has not yet been appropriated or capitalized." A constant supply of such frontiers is necessary for capital's never-ending expansion. With Ant Forest, carbon from trees offers precisely this outside.

These two versions of frontiers raise questions for further research about the relationship(s) between ideology and materiality in reproduction of the state and of capital. Both

kinds of frontier constitute an interface between the realms of the ideological and the material. The ideology of “national nature,” for example, can materially transform spaces into territorialized national parks. The material presence of trees planted in a desert can influence ideologies around the efficacy of environmental marketization. If the ideology-materiality relationships explored here serve to reproduce the state and capital, with problematic effects, what changes in those relationships might serve different purposes? If nature were “de-nationalized,” how would material territorialization shift? If we more accurately and transparently understood uncertainty and variability in material sequestration of carbon, would that impact ideologies about the importance of putting a pricetag on carbon? Frontiers sit at the intersection of ideology and materiality in the production of the state and capital. For those who would like to see states and capital pursuing environmental aims more justly, these are the kinds of questions we need to ask, and the kinds of frontiers to investigate.

A note, however, on the state, that should be relevant to any further research on frontiers in China: much of the work in this thesis has disaggregated “nature,” for example to show how it emerges in multiple, particular ways from personal, affective experience, diplomatic communication strategies and articulations that land in preexisting political landscapes (ch.1), or from business relationships that define greenness, possibilities of marketable carbon credits, and ultimately state reactions to “disorderly capital” (ch.2). But the state itself deserves similar de-unification. In China, where authority in the governance structure has been described as “fragmented” (Lieberthal and Oksenberg 1988), interactions between central, provincial, and local governments, and amongst departments and offices, may deeply affect how central-level policy turns up “on the ground.” While my lack of access to “the ground” for this project necessarily limited my view of “the state” to the central and, to some extent, the provincial, greater investigation into the nature (in both senses) of a multi-level and geographically-dispersed “ecological state,” in relation to both national parks and production of carbon credits, would greatly contribute to the ongoing conversation on how environmental policy, including

creation and territorialization of nature frontiers, may and may not reproduce the state and capital by serving as a form of rule in an increasingly authoritarian China.[73]

Techniques and Spatialities of Nature Production

A common thread throughout this thesis is how production of nature happens through certain techniques, from the discursive and diplomatic techniques of conservationists producing parks to the counting of carbon to produce offsetting trees in Ant Forest. This opens a broad space for further studies in the STS tradition. Technologies and techniques of carbon accounting in particular will play a critical role in China's pursuit of peaking and neutrality goals. Ant's admission that current methodologies for counting tree sequestration don't deal well with shrublands is just one indication that these techniques are likely to be the target of intense research and development in the coming years. Indeed, in October 2021 the NFGA gathered forestry and grassland officials from all provinces together for training on carbon sink measurement and monitoring, explicitly with the "dual carbon" goals in mind.[74] These emerging techniques deserve questions such as: who are the experts who construct these accounting systems, and how do they, and not others, come to count as experts? This line of inquiry echoes themes from the "translation" of national parks– whose version of measuring and valuing nature becomes amplified, at the expense of others'? "Natural capital" and its associated techniques and technologies are also international in the scope of their circulation,

[73] See, for example, Li and Shapiro's (2020) argument for "environmental authoritarianism;" Litzinger's (2006) characterization of conservation as operating through "contested sovereignties" of bureaucrats at various levels; Zinda's (2014) description of "disunity within the ecological state."

[74] *Department of Ecological Protection and Restoration, National Forestry and Grassland Administration*. 2021. "The 15th National Forestry and Grassland Addressing Climate Change Policy and Management Training Course Was Successfully Held (*di shiwu qi quanguo linye he caoyuan yingdui qihou bianhua zhengce yu guanli peixunban chenggong juban*)," October 15, 2021. http://www.forestry.gov.cn/zlszz/4254/20211015/163956276578629.html.

pointing again to the centrality of “translation” and its many complexities in how nature is transformed through counting and valuation. Along with questions of expertise, how is trust in such techniques generated (as we saw with the Ant Forest camera imagery), and what role does technology play in doing so? Other than in camera imagery, where does technology create apparent objectivity, potentially obscuring the political and the subjective in the creation of techniques? The role of technology in China in particular may be colored by state practices of surveillance and censorship, opening questions about the relationship between expertise, trust in techniques, technology and the state.

This thesis also generates important room to bring spatial questions to bear on such STS studies. Ant Forest, with its mostly rural, arid locations, highlights the importance of environmental and social place specificities to sites of carbon credit production. Similarly, Sanjiangyuan National Park, home to Tibetan and other minority groups, underscores how such place-based specificities matter in techniques of park production. Analyzing the local effects of projects like Ant Forest and national parks through ethnographic study would make important contributions to the broader project of addressing environmental crises in ways that are both effective and just. It’s important to realize that these crises, like climate change and biodiversity loss, are trans-scalar in that they operate and have effects at levels ranging from a *suosuo* root system holding down a square meter of sandy soil to (perhaps) a reduction in global atmospheric carbon concentrations. Much (though certainly not all) international activism, as well as governmental negotiations at forums like UN meetings, tend to focus on the global, or at least national, level (consider movements like 350.org, or Nature Needs Half). Better understanding of local effects of the diverse efforts to pursue global environmental goals, including and perhaps most importantly *how* the particularities of place and historical context shape such effects, is needed to inform and inspire forms of solidarity around climate and biodiversity action attentive to local effects and the trans-scalar nature of the problems and proposed solutions at hand.

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Since Xi Jinping's September 2020 announcement of goals to achieve peak carbon by 2030 and neutrality by 2060, policy and planning processes at multiple levels and departments across the nation's governance system have cranked into gear, churning out plans from forestry to transportation. Anecdotally, friends in China report there is always *something* on the daily CCTV news about carbon reductions. *Tan dafeng, tan zhonghe* (carbon peaking, carbon neutrality) has become household parlance. Clearly, this is a priority. And it's a priority that subsumes and becomes the overarching structure for many areas of governance, as exemplified by what's called the "1+N" policy framework. The "1," as President Xi explained at the framework's launch at the UN COP15 Biodiversity Conference in October 2021, refers to the unified aim of combating climate change, while the "N" references the range of pathways towards that aim. There are indeed many "N"s to global environmental crisis, in China and beyond, including protected areas and afforestation for carbon credits. But, as we've seen in both cases, which Ns policymakers, advocacy organizations, scientists and activists load into the "bandwagon" matter. And so do the particularities of place-based and necessarily political reworking and implementation. "1+N," the totalizing and the particular, aptly describes both the trans-scalar character of the problem, and an agenda for investigating approaches to it– only through attention to both the 1 and the many Ns can we advocate for ways forward both just and effective.

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