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Toward a postcapitalist feminist political ecology's approach to the commons and commoning

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Abstract: Feminist scholars are deeply involved in current global debates surrounding natural resource management. Looking at feminists' engagement through the entry point of the commons and commoning, feminists' voices are diverse. Somewhat separate from feminist discussions on the commons and commoning, scholars of postcapitalist community economies have recently linked their scholarship to the study of the commons and commoning. This essay expands feminist political ecology's approaches to the study of the commons and commoning by integrating some insights from existing eco- and autonomist Marxist feminisms as well as postcapitalist community economies. We first discuss a postcapitalist feminist political ecology's perspective. After introducing our site and methods, we explore the productivity of this framework through an examination of the case of a women-led cooperative that has been producing agave syrup in rural Mexico for the last two decades. To conclude, we discuss several insights this approach may offer for transformative politics.

Keywords: Commoning, community economies, cooperatives, feminist political ecology, Mexico, multispecies

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I. Introduction

Feminist scholars are deeply involved in current global debates surrounding natural resource management. Central to these debates are the notions of commons and commoning. Looking at feminists' engagements, some voices stand out. Ecofeminists,¹ such as Bennholdt-Thomsen, Mies and Shiva, and autonomist Marxist feminists, like Federici and Della Costa, argue that commons are not reducible to mere "resources" (Shiva cited by Esteva 2014) to be commodified, exploited or efficiently managed. That is, borrowing words from Linebaugh, these feminists recognize commons as expressing gendered and other "relationships in society that are inseparable from relations to nature" (2008, 279). They see commons and community as mutually constitutive: commons are the product and site of communal acts of care and responsibility. There can be "no commons without a community" (Mies 2014).

These feminists see commons as articulated through the production and reproduction of community (Shiva 2005; Federici 2012; Mies 2014). Their commons go well beyond the biophysical and include, for example, knowledge² and social³ forms. Furthermore, Federici (2012) and those who accept her reasoning argue for the "commoning" of social reproduction, such as childcare and housework, as part of the creation of collective alternatives to capitalism and central planning. Today, commons and commoning occupy a central place in discussions of transformative politics (e.g. Esteva 2014; Escobar 2015 and at The First North-South Conference on Degrowth in Mexico City in 2018). Notably, in this line of argument, resources that are not communally held and managed are not commons.⁴

Feminist political ecology⁵ (FPE) is another strand of feminist thought within which intersections of gender and the natural environment are examined in ways that may helpfully expand discussions on transformative politics. Within FPE, the terms common-pool resource or common property are often used instead of commons and commoning⁶ in discussion of gendered struggles over land, forest, water, etc. One of the strengths of approaches informed by FPE is that it encourages attention to how gender and other power dynamics between men and women and/or between women intersect to shape their access to and control over a resource or property in a specific place. Approaches informed by FPE illuminate the gendering of intersecting power relations linking humans and natural environ-

¹ There are, certainly, a diversity of ecofeminisms. In this paper our reference is limited to those who are frequently cited in discussions on commons and commoning.

² See, for example, how biopiracy destroys a knowledge commons (Shiva 2005).

³ See, for example, a waste management system (Mies 2014) and a money commons (Federici 2012).

⁴ There are some exceptions. For example, Shiva (2005) discussed the US state driven New Deal as recovering commons.

⁵ Like Elmhirst (2011) said, FPE scholarship is difficult to identify. We limit our discussion to those studies that are clearly labelled by their authors or others as FPE.

⁶ With some exceptions, such as Nightingale (2011), Wichterich (2015) and Zwartveen and Meinen-Dick (2001).

ments at multiple scales. However, FPE approaches tend to leave common-pool resource or common property undefined.⁷ Furthermore, while the commons, an object to be struggled over, is found in both FPE and eco- and autonomist Marxist feminisms, FPE rarely recognizes either commons' centrality in the constitution of community or common resources or property beyond the biophysical.⁸

Somewhat separate from the feminist discussions on commons and commoning thus far introduced, scholars who theorize in terms of postcapitalist community economies have recently linked their scholarship to the study of the commons and commoning. Through the perspective afforded by postcapitalist community economies, commons are seen as "a property, a practice, or a knowledge that is shared by a community" (Gibson-Graham et al. 2013, 130). These scholars recognize the centrality of commons for community through reference to Jean-Luc Nancy's understanding of a community as "being-in-common" (Gibson-Graham 2006). That is, community is, by definition, constituted through commoning. It is the process and site of being produced through sharing a property, a practice, or a knowledge. Although the exchange of ideas between postcapitalist community economies scholars and eco- and autonomist Marxist feminists⁹ is limited, their theorization share notions of a commons: the cause, site and consequence of joint practices of caring that simultaneously constitute and define community. Also, like eco- and autonomist Marxist feminists, scholars who think in terms of community economies recognize commons may include knowledge, culture and social dimensions (Gibson-Graham et al. 2013).¹⁰

There are critical differences between postcapitalist community economies' and other feminist approaches' study of the commons. First, they articulate the related and shared constructs of 'property' and its 'ownership' differently. Within postcapitalist community economies, 'ownership' of the 'property' identified as commons is not definitional. In approaches to the commons wherein its 'ownership' is definitional, property becomes a primary site of contestation. For example, within one influential feminist environmentalist understanding (Agarwal 1994), women forest users in Nepal and India who do not own property (e.g. land), rely more on common property or common-pool resource (e.g. forest resource). In this representation access to and control over this commonly held property is fundamental to their own and their households' survival. A typical storyline within this line of thinking is that when a common-pool resource or common is 'enclosed', when it becomes the sole property of a state or private entity, it ceases to be a commons and this inevitably harms the natural environment, social relations and livelihoods. It is predictably important in this line of thinking to protect commonly

⁷ Nightingale (2014) points out how this ambiguity is shared by Ostrom (1990).

⁸ There are exceptions, such as Nightingale (2011) and Wichterich (2015). Also see Tummers and MacGregor and Harcourt in this special issue.

⁹ With the exception of Val Plumwood.

¹⁰ For example, community supported agriculture (CSA) as a biophysical and social commons (Cameron, 2015).

managed property or resources from enclosure and to recover those properties that have been enclosed. This theoretically shaped centering on ownership is also found within FPE (e.g. Zwarteveen and Meinzen-Dick 2001). Within both lines of thinking the appropriate strategy for transformative politics is to contest ownership through collective action,¹¹ or, for Federici, through the commoning of social reproduction (e.g. housework).

From the perspective afforded by postcapitalist community economics the focus of these analyses on ownership are constraining and capitalocentric insofar as enclosure is inevitably linked to decommonization that leads to primitive accumulation which, in turn, indicates the expansion of capitalism (Federici 2012; Mies 2014). This capitalocentric view does not lend itself to understanding of paths other than acceptance or opposition to the capitalist. It is not particularly adept at seeing how women and men are “staying with the trouble” (Haraway 2016), how they common in the absence of a commons though practices of “reappropriation, reconstruction, reinvention” (Harcourt and Escobar 2005, 2; Harcourt 2017).

Postcapitalist community economies' construction of property can be traced back to antiessentialist Marxism. Within this school of thought, private property is not recognized as fundamental to capitalism (Resnick and Wolff 1987). Capitalists need not own the means of production. Capitalists can rent, for example, land, machines, or labour, for production and/or distribution. Further, capitalists are seen both to accumulate and desperately to distribute capital in order to secure conditions for their continued existence. Drawing on these two insights, Gibson-Graham et al. (2016, 193) argue, with a nod to Linebaugh (2008), that commons is better understood as “a process—commoning—that is applicable to any form of property, whether private, or state-owned, or open access”. Through the lens provided by postcapitalist community economics, it becomes possible to look beyond capitalism, to see how that shared understanding of property ownership constrains analysis, and then be able to recognize political futures that are not visible through this capitalocentric lens.

In this paper we lay the groundwork for and then integrate insights drawn from eco- and autonomist feminisms and postcapitalist community economics into FPE approaches to the study of the commons and commoning. We do this, first, through a more theoretical discussion, and second, by analysis of primary data. In addition to their productivity, integration of these perspectives is made possible by their theoretical compatibility. FPE and postcapitalist community economics both adopt a poststructuralist perspective in which process is fundamental. In all of these frameworks, as will be discussed further below, the terms gendering and commoning are more appropriate than gender and commons. Finally, both are committed to place-based politics and take a multi-scale approach. Turning now to mutual benefits, where eco- and autonomous feminisms and FPE critically

¹¹ A classic example is the Chipko movement in India (see Shiva 1988).

address the relationship between gender and natural resource management, their vision is often limited by their capitalocentric foundations and/or they are often class blind. Postcapitalist community economies approaches are, by definition, anti-capitalocentric and their insights help FPE to read commons for difference (regardless of property ownership, multiple forms, involving nonhumans), but by themselves they do not necessarily address issues of gender and other intersecting processes and commoning social reproduction even though some scholars actively integrate feminist insights.¹² Hence, it would appear mutually beneficial to develop a postcapitalist FPE.

In the following we first discuss a postcapitalist FPE perspective whose productivity, after introducing our site and methods, we explore through examination of the case of a women-led cooperative that has been producing agave syrup in rural Mexico for the last two decades. To conclude, we discuss several insights this approach may offer for transformative politics.

2. A postcapitalist feminist political ecologies' approach to the commons and commoning

One strand of FPE is interested in the gendering of natural resource access and control in everyday life (households and communities) (Elmhirst 2011). This FPE approach to the commons and commoning extends a non-gender essentialist approach by recognizing gender, not as the synonymous to the noun 'women' or as fixed roles, but as processes (Nightingale 2006) that intersect with others, social, political, legal and ecological, which, together, shape differentiated natural resource access and control between men and women and between women, as situated in specific spaces and places and at multiple scales.

This FPE approach integrates several insights from eco- and autonomist Marxist feminisms and postcapitalist community economies. First, it recognizes the co-constitution of commons and community. Commons are collectively to be cared for and these practices, commoning, are a binding force that constitutes community. Second, commons are conceptualized as "a process—commoning—that is relevant to any form of property, whether private, or state-owned, or open access" (Gibson-Graham et al. 2016, 193). Three arrows in Table 1 indicates three ways of commoning: (1) commoning enclosed resources; (2) maintaining commons or creating new commons; (3) commoning unmanaged resources. A "commoning-community"—a community taking care of and responsibility for a common—is constituted through the process of negotiating "access, use, benefit, care and responsibility" (Gibson-Graham et al. 2016, 196). When a property or resource is enclosed or unmanaged, commoning is a process of making its access wider and shared, its use managed more by a community, its benefits more widely distributed to a community and beyond, its care performed more by community members, and its responsibility

¹² This is not to say that postcapitalist community economies scholars, such as J. K. Gibson-Graham and Jenny Cameron, are not feminists.

Table 1: Postcapitalist community economies' approach to commoning.

	Access	Use	Benefit	Care	Responsibility	Ownership
Commoning enclosed resources	Narrow	Restricted by owner	Private	Performed by owner or employee	Assumed by owner	Private individual Private collective State
Maintaining commons or creating new commons	Shared and wide	Managed by a community	Widely distributed to a community and beyond	Performed by community members	Assumed by a community	Private individual Private collective State
Commoning unmanaged resources	Unrestricted	Open and unregulated	Finders keepers	None	None	Open access Open access State

Gibson-Graham et al. (2016, 197)

assumed more by a community. This postcapitalist FPE approach explicitly rejects capitalocentrism. Enclosure of a resource, a knowledge or a practice by private capitalism and states is not automatically thought of facilitating (primitive) accumulation. This anti-capitalocentric perspective allows us to see property as not defining commons. By extension, within this analysis, private capitalism and state agents may be potential commoners. Through this perspective gender and other processes are seen to intersect to shape everyday commoning performed by a co-constitutive community, potentially involving private capitalism and states.

This postcapitalist FPE approach adopts eco- and autonomist Marxist feminists' (Shiva 2005; Federici 2012; Mies 2014) as well as postcapitalist community economy's (Gibson-Graham et al. 2013) recognition of multiple forms in which commoning occurs: not only biophysical, but also knowledge, cultural and social commons. While eco- and autonomist Marxist feminists' as well as postcapitalist community economies understands that the production of a commoning-community requires more than caring for biophysical elements, FPE tends to focus more on those biophysical elements. Developing the literacy to see how the diverse forms, in which commoning occurs enriches understanding of the mechanism through which a commoning-community is produced.

The postcapitalist FPE approach discussed here recognizes a commoning-community as performed by both humans and non-humans. Instead of putting humans at the center of an analysis, this FPE perspective, albeit in preliminary ways, integrates a posthumanist perspective that encourages illumination of interdependencies between humans and nonhumans.¹³ It recognizes nonhumans' rights to live well. This FPE approach, thus, recognizes a commoning-community as multispecies which is argued to be a prerequisite for humans and nonhumans surviving together on our damaged planet (Gibson-Graham et al. 2013; Haraway 2016; Tsing et al. 2017; Gibson et al. 2018).

Postcapitalist FPE accepts Federici's (2012) recognition of commoning social reproduction (e.g. care work, housework) seriously. Social reproduction has been a fundamental interest of feminist scholars within and beyond the study of the commons (Katz 2002; Bakker 2003; Di Chiro 2008; Bergeron 2011) since the recognition that a fixation on wage labour obscured the un/paid social reproductive labour most often performed by women in and outside of the households. Postcapitalist FPE study of commoning recognizes this domain as fundamental to transforming gender and other social inequalities. Further, in recognizing commoning-community as multispecies, the commoning of social reproduction is coupled to ecological reproduction. Today, humans and nonhumans are "staying with the trouble" (Haraway 2016). We, together, are trying to survive well on our damaged planet, a "negative commons" (Mies and Bennholdt-Thomsen 2001) characterised by problems such as waste (Mies 2014), pollution, and debt (Kohso 2012). By rejecting capitalocentrism, postcapitalist FPE attends to how humans and nonhumans engage in "reappropria-

¹³ See Lloro-Bidart (2017) for another posthumanist FPE approach.

tion, reconstruction, reinvention” (Harcourt and Escobar 2005, 2; Harcourt 2017) of available resources, practices and knowledges that strengthen community well-being. Last but not least, “staying with the trouble” (Haraway 2016) within this postcapitalist FPE approach also means to keep exposing “the limits and contours of all the social forms we call commons and also the strings attached, its oppressions, its straitjackets” (Esteva 2014, i147) in order not to unwittingly perpetuate power hierarches and/or inequality in the name of commoning.

3. Site, background, and methods

The *Milpa Maguey Tierno de la Mujer* (Sweet Milpa¹⁴ of Women) (hereafter Milpa Maguey) is a cooperative started by 36 female Otomies¹⁵ in 1998 in San Andrés Daboxtha, Cardonal, Hidalgo in rural Mexico (Figure 1). In the 1990s structural adjustment programs pushed rural households to seek alternative livelihood strategies. Men’s out-migration became a popular livelihood strategy while women remained to take care of families, community and the environment and faced precarious forms of employment in the local community (Appendini 2010). This cooperative was originally set up by the governmental scheme called “Women in solidarity” to provide initial capital and encourage women to take up productive roles through group-based income-generating projects (Barajas 1997; Angulo 2000).

The region Milpa Maguey is located in the High Mezquital. The weather is dry, the temperature ranging from nine to 29 degrees centigrade throughout a year (SMN-CONAGUA, 2017) and the soil is poor and has deficient organic material and is slightly alkaline (Díaz et al. 2005). Historically, indigenous Otomies populated in the region generating livelihoods from green agaves¹⁶ (Boege 1989). Currently, 20 female and one male (a husband of one member) Otomies are running the cooperative producing agave syrup using local agaves and indigenous knowledge with various supports from other humans and nonhumans, such as the national government, non-governmental organizations (NGOs) and companion species to agaves, such as beans and maize. The cooperative has a democratically elected board, renewed by legal process and monitored by senior members.

Data collection was done by the second author who had been working for the NGO Enlace Rural Regional Civil Association (ERRAC) which supports Milpa Maguey with management since 2002 primarily between July 2012 and October 2015, on average eight days per month. Three data collection techniques were used. First, a survey of the 21 members was conducted to investigate agave re/production and the practices by which they created and maintained relationships in their community. Second, these initial findings were then enriched through four focus group

¹⁴ Milpa is an indigenous agricultural system. Maize is intercropped with domestic companion species such as beans, oats, squash, pumpkin and agave.

¹⁵ Otomies are indigenous people established in central Mexico and speak Otomi as their mother tongue.

¹⁶ Green agave is a common crop in central Mexico (Jacinto and García 2000).



Figure 1: The location of Milpa Maguey.

discussions (FGDs): two with eight cooperative members who take leadership roles to investigate its organization, organic management, division of labour, and income distribution and another two with all cooperative members to explore how they fulfil production requirements in their plots and in the facility. Third, data from the survey and FGDs were further supplemented by in-depth interviews with five family members (two husbands, one son and two daughters) and five community authorities (a municipal delegate, an authority in the water supply system, the community secretary, a committee member of community projects, and a treasurer). Historical information on the cooperative was obtained from the files held by the cooperatives and ERRAC. In order to confirm findings, participant observation and informal chats with cooperative and their family members were also performed. Data were organized in terms of the cooperative's members' relationships to biophysical, knowledge, cultural and social commons and then analysed using thematic content analysis informed by the aforementioned postcapitalist FPE approach.

4. Performing a commoning-community in the Daboxtha valley

For the last two decades Milpa Maguey has been generating livelihoods by producing agave syrup through individual and collective practices that have built on their indigenous knowledge. Milpa Maguey participates in a commoning-community in San Andrés Daboxtha. Table 2 shows the interactions between the four domains

Table 2: *Commoning performed by the cooperative members.*

	Access	Use	Benefit	Care	Responsibility	Property
Biophysical	Cooperative members, households, native species of plants, insects	Cooperative members, their family members (plot allocation, organic methods)	Cooperative members, their family, community members, future generations, nonhuman species and regional atmosphere	Cooperative members, the head of households, state, NGO, technical school, universities, nonhuman species and insects	Cooperative members, their family, community members, community authorities	Individually owned private (e.g. family plots, seeds) Collectively owned private (e.g. cooperative, <i>ejido</i>); Open access (e.g. insects); State
Knowledge	Cooperative members, their family, peasants, NGOs, technical schools and universities	Cooperative, household members, supported by external actors	Cooperative, households, peasants, future generations and nonhuman species. Widely distributed to a community	Cooperative members, peasants, community members, community authorities, school children, NGOs, technical schools and universities	Cooperative, households, community members	Collectively owned private (e.g. cooperative, technical school and universities); Private (e.g. HHs); State
Cultural	A: Syrup recipe shared by individual recipe holders, cooperative; B: Otomi shared by community members	A: Cooperative; B: Community members, cooperative members, community authorities, school and state	A: Cooperative members, their family and consumers; B: Community members, future generations and nonhuman species and regional atmosphere	A: Cooperative members and technical school; B: Cooperative members, community members, school and state	A: Cooperative; B: Community members, cooperative members, community authorities and state	A: Collectively owned private (e.g. cooperative, technical school); Private (e.g. HHs) B: Open access (Otomi)

Table 2 (continued)

	Access	Use	Benefit	Care	Responsibility	Property
Social	A: Cooperative shared by cooperative members; B: On-site childcare, money commons and <i>mano vuelta</i> shared by cooperative members; C: Inter-community water supply system shared by 8 communities	A: Cooperative supported by external actors; B: Cooperative members; C: 8 communities through the assembly	A: Cooperative members, their family and consumers, peasants, future generations and nonhuman species. Widely distributed to a community B: Cooperative members, their family, community members; C: Members of 8 communities	A: Cooperative, their family, external actors; B: Cooperative members and their family; C: Community members (households, private businesses) through <i>fáena</i>	A: Cooperative; B: Cooperative members; C: The community assembly – elected by 8 communities	A and C: Collectively owned private (e.g. cooperative, <i>ejido</i> , technical school and universities) Private (Member HHs); C: Collectively owned private (8 communities)

Adopted from Gibson-Graham et al. (2013).

Source: survey, interviews, and FGDs, 2012–2015.

of commons (biophysical, knowledge, cultural and social) and the categories of access, use, benefit, care, responsibility and property. Below, through an examination of how access, use, benefit, care and responsibility are negotiated by the cooperative members and other humans and nonhumans in commoning practices in biophysical, knowledge, cultural and social forms, we explore the productivity of a postcapitalist FPE approach.

4.1. Biophysical commons

In the region where the Milpa Maguey is located, multispecies biophysical commoning was historically performed by peasants around *milpa*, a traditional mutually beneficial system that intercropped maize, beans, pumpkins, oats and agaves¹⁷ on private (family plots) and alternative private¹⁸ lands (collective land or *ejido*¹⁹) (Mendizábal 1941; Boege 1989; Melville 1990).²⁰ According to studies on the history of land reforms in Mexico (Deere and Leon 2001; Hamilton 2002; Arizpe and Botley 2014), women's access and use of land, be it private or alternative private, were limited due to their non-ownership of the land. However, in practice, both men and women had access to and used family plots and *ejido* and both took care of and assumed responsibilities for the lands they used. These practices were gender, time and space specific. Men mainly performed agricultural tasks year around while women's agricultural contributions, constrained by their social reproductive activities in and around the households, were limited to the busy seasons on nearby family plots. These gender differentiated, multispecies commoning practices around the *milpa* benefited social and ecological reproduction at different scales: both feeding household members and allowing the soil covered by the *milpa* to retain moisture and nutrients, thus maintaining the semi-desert atmosphere.

Interlinked processes—social, political, legal, ecological—changed this biophysical commoning practice. Men's out-migration for alternative livelihoods encouraged by the effects of structural adjustment policies in the 1980 have resulted in their failing to meet local responsibilities. With the withdrawal of men, women assumed more responsibilities for the family lands (and in some cases *ejido*) and household livelihoods and thus took care of the lands and agaves and other agricultural products as men did before men's out-migration started. However, women's partial prior involvement in agricultural production limited

¹⁷ Combinations of plants may differ among peasants.

¹⁸ Private property yet not owned by individuals and private capitalists.

¹⁹ *Ejido* is collective land won by indigenous and peasant in the post-revolutionary agrarian distribution. It is regulated by the 27 article in the Mexican constitution. The modification of the article in 1992 allowed the sale of collective lands, turning them into private property (Lewis 2002), threatening them through privatization. In Milpa Maguey's community Otomi people claimed land in 1928, 1931 and 1939 and in November, 1940 they won 335 hectares. In 2017, *ejido* was being managed by 65 members (mainly men and few women) (National Agrarian Register Files: 70409, 10668 – Docket1; 70411, 10668).

²⁰ Agricultural practices are limited in the open access property (small hills) due to its deficient soil quality.

their knowledge of the more distant plots mainly worked by men. The concentration of women's effort close to home was also linked to a third shift (community work): *faena*.²¹ In addition to the double shift of household and agricultural work, women were compelled also to replace men as the household representative participating in community labour. In addition, women's lack of assets constrained their access to formal finance which limited their ability to hire extra help to cover the labour normally contributed by their men to processes, like agriculture, where income was deferred. The absence of men, women's increased "time poverty" (Soto Alarcón and Sato 2019), unstable livelihoods (irregular remittances), and lack of access to credit all increased their vulnerability. Care deficits led to a decrease in the number of agave seedlings planted which increased the number of untended plots in the region. One member sadly said: "Before [men's out-migration], people used to work in their family plots and after men left, some plots became brush (unused land)". Her sadness, coupled with stress, comes with her recognition of both her increased responsibilities for the family plots and agave care among others and her inability to care for agave due to her lack of both physical strength and ability to hire labour. This contributed to mutually reinforcing negative processes: the decrease in the area covered with the *milpa* increased uncovered area which was more susceptible to soil erosion and agaves' capacity to resist drought was diminished by their lower planting density as that reduced moisture and nutrients in the soil which made them more vulnerable to pests (e.g. *torito*²²). These care deficits, and other interlinked processes, created negative commoning in which those remaining, both human and non-human, were forced towards increased joint socio-ecological vulnerability.

Against this background the state, in an act recognized as care,²³ gave seed money to a group of women who became founding members of the cooperative, who "stayed with the trouble" by continuing to work in the negative commons. These women reappropriated available resources to reconstruct and reinvent the commoning-community. Cooperative members engaged in commoning through negotiation of access to their family plots to grow agave for syrup production with family members regardless of land ownership. For example, one member successfully negotiated with her mother-in-law to use land left vacant when the legal owner, her husband, worked overseas. This negotiation was made somewhat easier by the physical absence of her husband as well her mother-in-law being a cooperative member. Cooperative members also negotiated the terms of land use by establishing rules by joint consent that enabled their syrup to be certified as organic. Leveraging

²¹ Mandatory community labour assigned to a household and discharged by the male head that secured access to infrastructure and services collectively managed by a group of community representatives.

²² *Torito* or *picudo* is an agave insect pest (Rojas et al. 2008) which eats and eventually kills agaves.

²³ Following Tronto (1994), giving money can be considered care but in and by itself is not enough. Money has to be transformed by actual care, for example, everyday practices performed by cooperative members in the agave production in the agricultural field and beyond.

their existing knowledge by taking organic management courses,²⁴ they have been caring for the biophysical commons that was damaged by care deficits through using locally available fertilizer (i.e. dried sheep manure from their backyards) and regularly removing plastic waste from their plots. Negotiating with male family members over access to and rules on family plots is crucial, in part, because it secures these men's assistance for transplanting and cleaning agave which requires physical strength. One member, who negotiated the organic rules that govern care of their family plot with her husband, told us: "Although the organic management implies more work, the results are stronger agaves, more *pulque* (alcohol beverage) and aguamiel.²⁵" She was satisfied with these results because her extra labour was compensated also with increased income, in addition to increased ties with her husband, necessary for family's survival. Another rule set by and for members to reconstruct the common is to replant at least 50 agave seedlings in family plots annually. Cooperative members transplant seedlings within their family plots, leaving at least 1.5 meters between each agave to support their better growth. They couple agaves with their local companion plants to cover the soil with *milpa* that create ecological and social benefits. To ensure that all members know and practice their rules, they frequently discuss organic care during their meetings and organize annual monitoring under the supervision of an internal committee that they collectively elect.

Cooperative members have learned to read agaves' responses to their care, in part, through their own everyday experiments with agaves. They came to know that *torito* does not respect property lines. If a neighbour does not take care of her infected agaves, *torito* could contaminate agaves in their and other non-contaminated plots. Cooperative members told us: "The pest has made us more aware of the danger of agaves' extinction". Feeling the real threat of agaves' extinction made them more aware also about how they "live from agaves": they make not only syrup but *pulque*, sheds, fire, crafts and also eat their flowers and worms and ants' eggs which inhabit agave. How they felt was expressed in their practices. For example, they organize and secure external funds to support an annual campaign for agave reforestation,²⁶ through which they share what they know about organic agave care, reforestation and cleaning the plot and their ecological benefits (e.g. protection against *torito*) with neighbouring peasants. They also share their knowledge in the community assembly in the hope that it is then shared in assembly members' neighbourhoods. Also, knowledge is not the only thing shared. In the case of the shortage of agave seedlings, they exchange their surplus seedlings for other seeds or services (e.g. labour) with other peasants. The frequency of these caring practices has increased since 2010 when *torito* started to reduce the availability of seedlings. Caring through the exchange of knowledge and goods is "learning to be affected" (Latour cited by Roelvink 2015, 228): "an

²⁴ Some cooperative members have taken at least four courses.

²⁵ Aguamiel is the sap produced by mature green agave.

²⁶ The National Commission of Arid Zones (CONAZA) originally funded this campaign.

ethical practice, one that involves developing an awareness of, and in the process being transformed by, co-existence” (ibid.). Through multispecies commoning practices acting as a binding force, the community has recovered and converted at least 70 hectares of their agricultural lands to certified organic production.

This community experienced decommoning but, contrary to the expectations of capitalocentric analyses, that did not lead to capital accumulation. The women left behind “stayed with the trouble” of the negative commons. The humans involved are not only cooperative and family members. Members of public institutions, NGOs, technical schools and universities also offer support. Commoning is found in processes of production and social reproduction around agave care on diverse types of property: privately owned individual (family plots), community-owned private (*ejido*), state-owned (funding and trainings), and open access (e.g. atmosphere, solar, insects). Looking beyond the cooperative, it is possible to see the greater diversity of interlinked benefits created by a commoning-community: ecological benefits to non-humans, such as plants, soil and regional atmosphere are linked to social benefits distributed to cooperative members, members’ households, and the larger community including distant consumers.

4.2. Knowledge commons

As indicated above, biophysical commoning does not exist on its own. Commoning has drawn on and shaped indigenous and peasant knowledge of agave re/production in a manner that is a necessary part in the reconstruction of the biophysical commons. This commoning knowledge is gendered and intergenerational. Historically, agave has provided livelihoods, food, beverages, housing materials, and more in the region. Otomi peasants, mainly men, developed knowledge about agave care from everyday experiments and this knowledge has evolved through younger generations. Men learned from their fathers, did their own experiments and taught their sons about the types of agaves and their differential resistance to drought and pest. They did the same with respect to rules for caring for agaves: for example, how often to clean the plot, when to replant new agave seedlings, and how to prepare the land for agave reforestation.

The reduced biophysical commoning caused by men’s out-migration was coupled with impoverishment of the knowledge commoning. The cooperative members we studied took responsibility for restoring the knowledge commons through accessing a locally available knowledge source—their fathers. From them they learned what they had and would teach their sons, for example, the use of local organic fertilizer, how and when best to apply it. They also learned the best agave species for their varied ecological contexts and the importance of agave diversity in managing vulnerabilities in the region.²⁷ For example, one female member

²⁷ The Otomies in the highlands have identified that the smaller agave (*manso*) is more resistant to strong wind and water shortage than the large agave (*xamini*) (both agave *salmiana*) whereas *xamini* can produce aguamiel quicker (Rangel 1987).

stated: “My father taught me the work in the field, such as letting agave roots dry a little so that they have more strength when replanted”. Cooperative members’ role in restoring the knowledge commons was crucial because the long absence of adult male peasants meant that young men did not learn how to care for agave. Using this knowledge, women cooperative members have identified those agave species that best keep moisture in the soil, thus resisting desertification and maintaining more complex ecologies. As mentioned previously, they make access to their collectively managed private knowledge wider by working with neighbouring peasants during and beyond annual reforestation campaigns and through their talks at community assemblies. This commoning beyond the commons is accompanied by transformations in gendered practices: knowledge now goes from elder fathers to adult daughters and, through them, to others.

The rules that structure knowledge commoning are defined by the Otomi’s situated needs. Cooperative members know that younger generations, particularly circular migrants, do not know about and are not interested in agave care. In order to survive well together across generations in their specific place, cooperative members do not look only to their own children. They have been making their knowledge accessible to younger generations through talks in elementary schools on topics such as the importance of agave reforestation, pest identification, and the social and ecological benefits the local Otomi have enjoyed from agave over the years. Such practices promote responsibility to care for agaves among younger generations, both men and women. Their sharing of knowledge outside their cooperative and outside of familial bounds demonstrates how members are not only restoring, but they are reinventing a knowledge commons to secure social and ecological reproduction.

Unlike Federici’s autonomist approach that attempt to move away from both states and private capitalism, non-cooperative private and public actors are important members of the knowledge commons. Cooperative members actively look for support from community authorities, local technical schools and regional universities, be they public or private, mainly in the area of agave management (e.g. pests and organic management) and they do not hesitate to alter their own knowledge. Although engagement of such ‘outsiders’ is infrequent, they contribute to the widening of the knowledge commons by helping cooperative members, and through them, other species, to improve their agave care.

Commoning knowledge is performed by a multispecies community comprised of cooperative members, their household members, neighbour peasants, younger generations, educational institutions, states, agaves, beneficial insects, pests, soil, and water at multiple scales. Benefits are distributed to those who use knowledge and non-humans (e.g. plants, seeds, insects like ants and red and white worms,²⁸ and pests, like *torito*, and the regional atmosphere) that interact with the practices

²⁸ Ants’ eggs and worms are edible and part of regional nutritious foods. Also, green agave and ants are mutually beneficial. Green agave hosts ants and ants protect the agave against pests (Lara et al. 2015).

that knowledge informs. Through these efforts, the community has maintained at least 25 different agave species in the region (Milpa Maguey Tierno de la Mujer 2008). It is just one example that demonstrates how biophysical and knowledge commoning are closely interrelated. Through recovering and adding to locally available knowledge, reaching out to others and careful everyday experiments, knowledge is collectively managed and passed between and within generations.

4.3. Cultural commons

The importance of agave is found in more than the biophysical and knowledge commons. Agave is not only a resource, common-pool resource or common property. Cultural meanings attached to agave are diverse and agave is used in a variety of ways. While one traditional way to use agave is to make *pulque*, cooperative members wanted to make something different with it for their enterprise. They found that elderly women held a recipe in which they substituted cooked aguamiel for milk which they gave to their babies in times of food insecurity. In this example cooperative members reappropriated a locally available resource, a disappearing cultural artifact. The cooperative's production of agave syrup as instructed by this recipe is easily read as commodification from a capitalocentric perspective. According to this reading, they have taken a cultural artifact, stripped it of its co-constitutive relations and converted the remainder into a literal commodity. This same recovery may also be read as enrolling marginal people, elderly women, in a community economy, partially maintained through sales to be sure, through reclaiming a perishing cultural practice. Cooperative members' engagement of elderly women reduced aguamiel wastes and improved household livelihoods, benefitting both social and ecological re/production. Further disrupting recognition of women's reappropriation of elder women's knowledge as commodification, the cooperative members have defined rules that govern use of the recipe in agave syrup production which do not optimize only for cash value. For example, they have passed down the revised recipe only to female descendants. In addition, cooperative members have attempted to improve the quality of their agave syrup through seeking out several trainings from a technical school in the nearby city. As is the case with the agricultural practice, they start from their own commons, but they do not hesitate to draw on any enriching resource they can identify. They are, together, "citizen scientists" (Bhattacharjee 2005). They are citizens who do science and scientists who use their efforts to improve citizens' lives. By inviting the technical school and the younger generations to join in their commoning, cooperative members extend the cultural commons and its benefits are shared at multiple scales: among cooperative members, their family members, future generations and (distant) consumers,²⁹ who, from this analysis, are the incidental recipients of a quality product.

²⁹ Consumers come locally, regionally (nearby cities) and nationally (Mexico City).

The enlargement of biophysical and knowledge commons is interdependent on Otomi (language), a cultural common. Otomi is spoken and cultivated inter-generationally in households, and local and regional institutions. However, due to now established migration trends and the dominance of Spanish, the survival of Otomi cannot be taken for granted. In order to nurture this cultural commons community members and authorities have negotiated with the state to ensure that Otomi is taught in the primary school along with Spanish. The continuous use of Otomi enables them to maintain many aspects of Otomi culture among which are a host of terms and connotations that are functional to agave cultivation. There are at least 25 different agave species named in Otomi, and the Otomi people know their names, physical characteristics and uses only in spoken Otomi. When and if Otomi is no longer spoken, both Otomi culture and knowledge about agave biodiversity (e.g. fighting against pests and which agave works well in which type of soil and ecological context) in that region could be severely depleted.³⁰ Putting the aforementioned school talks about agave's location in their culture by cooperative members in this context, we see how they take up their responsibility for the reproduction of Otomi culture, which is interdependent on ecological reproduction. Otomi is not a common-pool resource or common property which exists independent from the Otomi people. Practicing Otomi is a binding force in the constitution of the multispecies commoning-community.

4.4. Social commons

Milpa Maguey exists in a diverse web of commoning practices. For example, its physical facility is built on *ejido*, a collectively managed private property. The siting of the cooperative on *ejido*³¹ was made possible by negotiation through familial networks. As stated by one cooperative member:

We asked my husband for help, because we needed a piece of land to build the cooperative facility. He had a position in the *ejido* management and he was the secretary. As cooperative members, we took advantage of this and we convinced the other *ejido* members to give us the land.

Winning familial support has been hard for most cooperative members. Like other women's cooperatives (Martínez et al. 2005; Stephen 2005; Riaño and Okali 2008), they have experienced disapproval. Women members work extra hard, for example by waking up earlier and in so doing expanding their time poverty, to prove how their cooperative work contributes to their family. As one husband of a cooperative member stated: "I help my wife in the cooperative, because I have seen that her job benefits our family". Familial support is conditional on forms of reciprocity that are rooted in the local Otomi culture (Soto Alarcón and

³⁰ Ethnobotanists, such as Rangel (1987), recorded agaves' names, physical characteristics and uses in Spanish.

³¹ Two women members cultivate agaves on *ejido* through their husbands' memberships.

Sato 2019). This reciprocity benefits the cooperative most immediately through the access to labour of its female members made possible when families release women from domestic duties by distributing their tasks to other family members. Family support is not granted. Rather, it is an ongoing negotiation. Women's participation in the cooperative is subject to ongoing discussion within families and there are occasional familial disputes and domestic violence is still experienced even after two decades.

Many of the diverse commoning practices that support the social commons concern social reproduction. For women left behind who do not have regular remittances or public support for childcare and healthcare, the cooperative provides a space for all cooperative members to have access to childcare, financial and various supports. Women cooperative members take care of their members' (grand-)children collectively within their facility, allowing members who need childcare to participate in paid agave syrup production. In addition to child care, the cooperative has assumed responsibility for access to credit by creating a "money commons" (discussed by Podlashuc cited in Federici [2012]) on which members may draw since many are not able to access formal credit. One member said:

We save a fixed amount of money every fifteen days or when we have the agave syrup sales payments. One woman in each team³² is responsible for saving. It works. When we need money, we use it.

Women have been able to use their common pool savings to meet their household's consumption needs, such as children's education, health care and buying sheep, in addition to collective needs, such as buying raw materials or maintaining their facilities. Cooperative members also collectively care for each other's emotional needs. Within each production team, and/or across the entire membership during regular meetings, members discuss not only business but also familial, private issues, such as domestic violence and gendered oppressions women members experience in and outside of their households. Furthermore, cooperative members rotate help among each other through a practice called *mano vuelta* (hand back), for non-cooperative activities, such as family festivities. These gendered commoning practices that are relevant to social reproduction, though some of them intensified women's time poverty and appear to reinforce the existing feminine moral code that associates women with altruism (Soto Alarcón and Sato 2019), have produced concrete benefits, such as better meeting household needs and strengthening social ties among cooperative members.

Performing *faena*, the mandatory labour each member household must perform in exchange for access to infrastructure and services the community provides, such as road, schools, and health care, is social commoning. *Faena* enacts reciprocity and shared responsibilities between member households. The commu-

³² The cooperative work is divided into five teams. Each team produces agave syrup once a week.

nity assembly, which is elected by the head (often male) of each member household, assumes responsibility for the services. The community assembly defines the rules that govern use of community services: each household head must perform labour, such as making, maintaining, and repairing roads or buildings.

Faena also maintains the inter-community water supply system, a social commons managed by a committee comprised by the democratically elected representatives from eight villages in the Daboxtha valley. This collectively managed private system has been providing water to each member household in the eight villages found there since the 1960s. The water system management committee is responsible for and defines the rules that specify both *faena* (which may be both labour and cash) and water rights (Galindo-Escamilla and Palerm-Viqueira 2009).

In both intra- and inter-community infrastructure and services, if a household is unable to send its representative to do *faena*, then it must arrange a delegate. Failure means a fine or loss of access to the covered service. While *faena* has traditionally been done by male heads of households, male out-migration has led women to replace their absent men (Rivera 2006) even though it often involves physically demanding work. The benefits of this commoning are regular accesses to essential services that would be provided in better serviced areas by the state in the semi-desert Daboxtha valley which women must now provide in addition to their cooperative and domestic labour.

Enterprises within the community also use collectively managed private properties, such as roads and water. Like households, enterprises must contribute *faena* in order to secure access to these services. In the words of one cooperative member, "As a cooperative we are part of the community... We know our responsibilities and we do *faena* when the authority asks us". Contribution of *faena* brings mixed benefits. On the one hand, the cooperative received permits and projects authorizations from the community authorities since they recognized the contribution of the cooperative to the community. On the other hand, the time it takes for the women members to discharge the obligatory communal service of their cooperative increased women members' time poverty (Soto Alarcón and Sato 2019). These practices are, thus, contradictory. They both transform gender norms, by including women in practices that are traditionally men's, and at the same time they reinforce existing gender norms, such as female altruism.

5. Conclusion

This study expanded a postcapitalist FPE approach to the commons and commoning by drawing on several, albeit limited, insights from existing (eco- and autonomist Marxist) feminists and postcapitalist community economies. As worked out through an examination of the case of a women-led cooperative in rural Mexico, this postcapitalist FPE perspective enabled us to see how gendered, place-based multispecies commoning practices are constituted by processes of negotiating access, use, benefit, care and responsibility among cooperative members, other humans and nonhumans, in a web of intersecting gender and other processes that

extend well beyond the bounds of the ‘commons’ as conceived through feminist analyses that are not informed by postcapitalist thought. This postcapitalist FPE analysis provides several insights for transformative politics.

The postcapitalist FPE perspective used in this analysis enabled us to see that recommoning, or reconstructing and reinventing a commoning-community, may happen in diverse ways and involve atypical actors, that it may reproduce inequitable relations and that its course is not defined by the binary of (non-)capitalism.

The results reported here are consistent with those found even more difficult circumstances. For example, the class struggle between an industrial capitalist and local people over the surplus produced by the capitalist (Gibson-Graham and O’Neil 2001) is possible to recognize as part of commoning: how the local community and the capitalist come together to reappropriate the surplus originally appropriated by the capitalist.

In this study we found how agency is enacted through “reappropriation, reconstruction, reinvention” (Harcourt and Escobar 2005, 2; Harcourt 2017) of available resources, practices and knowledges in ways that strengthen the wellbeing of the community through everyday multispecies commoning practices. While the results of commoning that we observed certainly intersect with the reproduction of the existing feminine moral code in which women are to be altruistic and national and global neoliberal restructuring, these are not foundational.

In the analysis modelled in this paper, non-humans are not passive objects, but are critically recognized as actively participating in and responding to the care provided by and providing care to humans and nonhumans. Further, we have been able to pay critical attention to both social and ecological reproduction which is consistent with the suggestions made by feminists and postcapitalist community economy scholars (Gibson-Graham et al. 2013; Haraway 2016; Tsing et al. 2017; Gibson et al. 2018) that fostering this multispecies thinking is a prerequisite for pursuit of humans and nonhumans joint survival on our damaged planet.

The multispecies commoning-community we describe is enabled by diverse commoning practices among humans and nonhumans that cut across different types of property, different forms of commons. By recognizing that commoning need not be bound to ownership, this approach enables us to see commoning across types of property, in different domains, with multiple actors as potential commoners. This ability allows us to better understand how humans and nonhumans are interdependent and how multispecies community building may require diverse biophysical, knowledge, cultural and social commoning practices. If we can begin to see multispecies commoning practices as prevalent, we may be able to see as interconnected practices whose current separate recognition produces sub-optimal strategies for support and intervention.

Our analysis has not, we hope, romanticised multispecies commoning. In order to not depoliticize commoning, as has happened to “empowerment” and “participation” (Cornwall and Brock 2005), analysis must attend to “the limits and contours of all the social forms we call commons and also strings attached, its oppressions,

its straightjackets” (Esteva 2014, i147). In our case, we must not lose site of the time poverty and inequitable gender and other power dynamics that appear to be strengthened by commoning practices. As shown, diverse commoning practices are interdependent on each other. Along with trying to change property rights at macro, global levels, efforts we do not intend to discourage in any way, we could also engage local humans and nonhumans to transform our everyday life “here and now” (Gibson-Graham 2006) through multispecies commoning with possibly unexpected actors. The postcapitalist FPE study of commoning proposed here is, finally, recommended only as one step in the necessarily iterative processes through which we elaborate conceptual frameworks that are better able to support concerted efforts to survive well together on our damaged planet.

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