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A Gradient Framework for Wild Foods

Andrea Borghini[1], Nicola Piras[2] Beatrice Serini[3]
[1,2,3]Department of Philosophy, University of Milan (Italy)

Abstract. The concept of wild food does not play a significant role in contemporary nutritional science and it is seldom regarded as a salient feature within standard dietary guidelines. The knowledge systems of wild edible taxa are indeed at risk of disappearing. However, recent scholarship in ethnobotany, field biology, and philosophy demonstrated the crucial role of wild foods for food biodiversity and food security. The knowledge of how to use and consume wild foods is not only a means to deliver high-end culinary offerings, but also a way to foster alternative models of consumption. Our aim in this paper is to provide a conceptual framework for wild foods, which can account for diversified wild food ontologies. In the first section of the paper, we survey the main conception of wild foods provided in the literature, what we call the Nature View. We argue that this view falls short of capturing characteristics that are core to a sound account of wilderness in a culinary sense. In the second part of the paper, we provide the foundation for an improved model of wild food, which can countenance multiple dimensions and degrees characterizing wilderness in the culinary world. In the third part of the paper we argue that thanks to a more nuanced ontological analysis, the gradient framework can serve ethnobiologists, philosophers, scientists, and policymakers to represent and negotiate theoretical conflicts on the nature of wild food.

"A thing not of nature." That is how food had been defined by the doctors and philosophers of antiquity, beginning with Hippocrates, who included it among the factors of life that belong not to the "natural" order but to the "artificial" order of things.
Massimo Montanari, *Food Is Culture*

§0 Introduction

The concept of wild food does not play a significant role in contemporary nutritional science and it is seldom regarded as a salient feature within standard dietary guidelines. The knowledge systems of wild edible taxa are indeed at risk of disappearing. However, recent scholarship in ethnobotany, field biology, and philosophy demonstrated the crucial role of wild foods for food biodiversity and food security (Bharucha, Pretty 2010). The knowledge of how to use and consume wild foods is not only a means to deliver high-end culinary offerings, but also a way to foster alternative models of consumption (Łuczaj et al. 2016). Our aim in this paper is to provide a conceptual framework for wild foods, which can account for diversified wild food ontologies**.** The paper is intended to convey only the category of "wild food," while we leave aside the characterization of both food taken alone and wilderness.

In the first section of the paper we survey the main conception of wild foods provided in the literature, what we call the Nature View. This view is often expressed through the contrast with other categories (e.g. cultivation, domestication), in an inclusive or exclusive manner (Sõukand, Kalle 2016). For instance, focusing on the type and intensity of the human-nature relation, a food can be considered wild when it is not cultivated at all or when its development is indirectly aided by human's participation (e.g. clearing or burning) or when it is the object of incipient agriculture (Turner et al. 2011). Wild foods can also be singled out and characterized by their habitats: wild is everything growing within a forest, outside a garden, along ditches or in abandoned urban spaces. We argue that these understandings of wild foods

fall short of capturing characteristics that are core to a sound account of wilderness in a culinary sense.

In the second part of the paper we provide the foundation for an improved model of wild food, which can countenance multiple dimensions and degrees characterizing wilderness in the culinary world. The model rests on two simple pillars: first, for an item to count as a wild food there must be an institutional act which makes it such; second, that act should be correlated to the right dispositions of the item. Such dispositions represent general features of wild foods that interact with each other in specific ways and that can be understood as gradient properties.

In the third part of the paper we argue that thanks to a more nuanced ontological analysis, the gradient framework can serve ethnobiologists, philosophers, scientists, and policy makers to represent and negotiate theoretical conflicts on the nature of wild food.

§1 Ontologies for Wild Foods

§1.1 The Nature View

Today we witness an increasing wide interest in wild food due to its alleged importance in achieving sustainability goals, its supposed contribution to health and well being, and its role in coping with undernutrition and malnutrition (e.g., List 2018; Pollan 2008), with important consequences for social structures and regional economies (see Bharucha and Pretty (2010; 2015) for an exam of the recent literature on the topic).

Wild food[1] plays a key role in human diets, insofar as more than 7000 wild plants have been employed as food in the span of human history and about one billion people still include wild foods in their diets, as surveyed by Bharucha and Pretty (2015). Most wild food consumers reside in developing countries, where wild foods make a formidable contribution against undernutrition and malnutrition (Johns, Sthapit 2004). In the EU, for instance, 100 million people still consume wild foods, such as game (38 species), mushrooms (27 species) and vascular plants (81 species) (Schulp, Thuiller, Verburg, 2014).

A survey of the existing literature on wild food as well as the results of field investigations on popular terminologies to describe wild food suggests the existence of a naturalistic theory of wild foods, which we call the Nature View (cfr. Sõukland and Kalle 2016; Guyu and Muluneh 2015; Koizumi and Momose 2007; Berlin 1992). The Nature View makes wild food into a purely descriptive concept, correlated to an ontological category. According to it, items included in the category of wild food share some simple natural characteristics, namely: (i) they are not domesticated and (ii) their habitat is free from human intervention.

The first characteristic can be spelled out by outlining the meaning of domestication. In first approximation, an entity is domesticated just in case its existence directly depends on human management. Now, human management can be more or less invasive and comes in different kinds. Thus, we can distinguish different degrees of domestication based on degrees and kinds of invasiveness. At a lesser degree of invasiveness, we find those populations of

[1] For the sake of coherence with the relevant literature, we assume that the category of wild food includes wild edible plants, game animals, fish, edible mushrooms, and edible microbes. Also, we shall leave aside from our discussion the use of wild food in contexts other than those that are strictly culinary, as when wild food is regarded as a form of medicine, fuel, material for construction, tool to carry out a religious ritual; for these see Cunningham 2001.

animals or plants whose members produce fertile offspring independently by – but also thanks to the help of – human management; examples are wild blueberries and heirs (O'Rourke 2000: 148). At a greater degree of invasiveness we find those populations of animals or plants whose members are not able to grow and produce fertile offspring independently of human intervention; examples are Jersey cows and squashes (Cruz-Garcia and Price 2014).[2] Finally, there are those populations of animals or plants whose distinctive biological, behavioral, and genetic features are engineered by human efforts independently of sexual reproduction; examples are products of grafted plants, such as apple and peach trees, and (perhaps constituting *sui generis* classes) genetically modified organisms of increasing complexity, including microbes (e.g. starters for fermented beverages), plants (e.g. strawberries), and animals (e.g.chickens) (crf. Décory 2019: 48).

The second clause states that, if food is wild, then the territory in which it is found should not have been managed by human beings. The clause is, however, unreasonably demanding. For instance, consider the practice of supplementing winter feeding of game animals, such as the red and roe deer *Capreolus capreolus* in Germany, Austria, Hungary, Norway, Sweden, and Denmark. Such practice is carried out precisely for maintaining a high-density population for hunting purposes (Putnam, Staines 2004). The feeding cannot be thus considered as a marker of domestication. Nevertheless, these deers are usually considered sources of wild food.

The Nature View, hence, presumes that there is, at least in principle, a naturalness that entails a lack of human intervention (Comstock 2012; Siipi 2013; Borghini 2014); and that such naturalness can be detected in some specific food categories, among which wild food.[3] The more food is natural, namely not affected by human intervention, the more it is wild. Also, those who endorse the Nature View usually do not come up with a sharp version of it. They rather adopt a gradient category as broad as possible to include disparate cases of semi-domesticated populations (Pretty and Bharucha 2015: 477; Mysterud 2010; Wiersum 1996; Harris 1989).

The Nature View seems initially plausible since it depicts a category of entities that is mostly intuitive and largely studied. Moreover, it can also fit the intuition that an environment free from the intervention of human beings is uncommon. Wild foods, according to this View, reside along a gradient between the pure nature and the absolute domestication. Nevertheless, there are at least three reasons for rebutting the Nature View. All three draw from the ethnological approach to ontology, also known as ethnoontology. Ethnoontology embraces the aims of ontology and tries to merge them with the empirical methods and theoretical perspectives proper to cross-cultural ethnological studies (Ludwig, Weiskopf 2019). According to the seminal introduction by Ludwig and Weiskopf (2019), more specifically, ethnoontology draws on empirical data collected in cross-cultural contexts as well as traditional ecological knowledge to develop ontological claims on the nature of specific categories or relations. These categories are historically and geographically determined, emerging from different cultures; nonetheless, they often overlap with each other (Ludwig 2016). According to this approach to ethnoontology, there is not a True Ontology that underlies all human activities and objects;

[2] Let us make clear that Cruz-Garcia and Price do not endorse such a view, but they just mention it and then challenge it.

[3] There are also other natural food categories, such as organic food and biodynamic food.

rather, there is a plurality of ontologies that are the outcomes of the human interpretative interactions with each other and with the environment (Palecek, Risjord 2012:18). Ethnoontology thus entails that the same web of interactions between humans and their surrounding environment can give rise to more than one ontology and the same environment can consistently yield more than one ontological framework. This can be proved by seeing the wild food ontologies of the different cultures, such as the Yazidis, Assyrians, and Muslim Kurds of Kurdistan (Pieroni et al. 2018). What counts as wild food varies substantially across those cultures, which share geographical spaces as well as a collective web of cross-cultural interactions.

Of course, recalling empirical data and ethnological surveys cannot solve all ontological disagreements, but only the easy cases where no conflict among the interests of different communities arises. The case of wild food is a poignant one since it partly relies on the role of people in managing the relevant populations of organisms and their environments; hence, it bears a strong tie with the intentions, decisions, and norms of communities. Can the Nature View account for such a tie and, thereby, help us pinpoint where disagreements emerge and how to address them?

§1.2 Against the Nature View

We contend that the Nature View cannot account for the ties that the concept of wild food bears to the intentions, decisions, and norms of various communities that make use of the concept. In this section we provide three arguments to substantiate our claim. The arguments do not aim at rebutting the possibility of the existence of an epistemically and ontologically objective category of wild food. Rather, we have the less ambitious goal of showing why a gradient category of wild food, which is supposed to go from natural to domesticated, fails to include all entities that may be plausibly regarded as wild food, and it is often controversial. The effort to categorize the number of stages between wildness and true domestication, in fact, gives rise to several different terms that often fail to distinguish the wild form of a species from the cultivated ones (Tardío et al. 2006).

(i) The first argument we present is *The Absence Argument*. If there are objects that hold the features of wild food, by universal instantiation, they fall into the category of wild food. Such objects should be widespread all over the world, although in different degrees, namely with different influences exerted by human beings over them. Yet, it is not the case that all cultures do recognize the existence of food that are wild. Sometimes, the concept is missing altogether from a community. Are the supporters of the Nature View going as far as claiming that such communities lack the conceptual tools to recognize the category of wild food? Or, shall we instead conclude that the category of wild food does not exist at all? Such dismissal may even be grounded on extant empirical evidence. For instance, Tarahumara people of Mexico lack a word or a concept that refers to *wilderness* and hence to wild food. Also, the Nl'aka'pamux communities do not have a concept similar to wilderness (Dowie 2011). David R. Klein (1994) highlights that the very concept of wilderness is alien to arctic cultures such as the Gwich'in. Within such culture, for example, the Caribou is 'simply' that animal that appears in Fall and Winter. Likewise, the Povo do Santo (People of the Saint), an African-Brazilian cult, endorse a *sui generis* classification system according to which plants are grouped into four

categories each of which is tied to a divinity worshiped in the cult (Albuquerque et al. 2017: 43). On top of specific empirical evidences along those lines, we may add that the current use of "wildness" emerged only at the end of the 19th century, when American legislation established the first wild protected areas by expelling the original inhabitants and designating such lands as "unoccupied by humans from the beginning of time" (Sarkar 2005: 40).

These empirical evidence suggests that the category of wild food relies on a particular way (the Western way?) of grasping reality, which distinguishes nature and culture as two isolated points along the same line, posing wilderness as opposite to human and nature as "an order originally fixed through evolutionary process" (Segerdhal 2007: 171). Such a way of grasping reality, however, bears no special epistemic standing with respect to alternative ways. Insisting on a special epistemic standing would entail that Westerners know food better than other communities on the planet, which is clearly at odds with what we can observe. Thus, recognizing that 'wild food' is a complex and multifarious concept is a step towards integrating scientific knowledge with the so-called Local Ecological Knowledge (e.g., Ludwig and El Hani 2019; Joa et al. 2018; Ludwig 2017; Pierotti 2011; Anderson 2010). The Nature View, hence, is just one of many ways of understanding the category of wild food.

(ii) The second argument we present is *The Synchronic Incoherence Argument*. It is possible that whether a certain food is wild or not varies within the same group at a given time. We detect an internal incoherence in this view since the extent within which food is wild rests on the specific person dealing with it. Group members differing for their age, gender or social status tend to classify the same food as belonging to different categories. This internal difference within the same community may be due to the diverse engagement by the social actors in gathering, hunting, and foraging. If so, an object is wild not due to its being more or less intrinsically natural; rather, a food is wild in virtue of a specific social recognition by a certain cohort of social actors.

The point raised by this second argument is important and calls for some elaboration. Evidence shows that not all the members of a community share the same conception of wild food. Some plants that are regarded as weeds by most community members are instead intentionally managed by farmers for the purposes of being consumed. This is the case, for instance, with beechnuts in Netherland, shepherd's purse in Europe, leaves of Japanese maple in Japan, which were usually consumed by those with less purchasing power[4]. In this case, if we rely on the old gradient category, there is no objective way to establish whether such foods are wild. The lack of objectivity, of course, is not due to a lack of knowledge but instead, it is due to the impossibility of fixing a natural standard. Indeed — although two (different) social groups within the same greater society could have all and the same relevant information about the same food, they may still nevertheless consider it wild/not wild based on their social statuses. The different views would not stem due to a difference in background information regarding the food (e.g., the fact that the food was or was not managed), but due to their conceptions of what counts as managing, as food, and as wild. As we stress in §1.1, different communities that deal with the same environment can give rise to different ontologies. We now

[4] See the comprehensive famine foods database hosted by Purdue University server due to Robert Freeman, in which he also collected wild food considered as food just by the poorest people, https://www.purdue.edu/hla/sites/famine-foods/

point out that in the same way, different social groups within the same community can come to have different ontologies based on their social, economic, biological and cultural statuses; these shape what counts as food, wild, and management for them.

A particularly relevant asymmetry within communities is registered by several studies when comparing women and men, who seem to rely on different epistemic and ontological conceptions of wild food. For instance, Setalaphruk and Price (2007) surveyed 10-12-year-old girls and boys in a little village in the Northeast Thailand: the girls' knowledge of plants (66.5%) is greater when compared to boys (59%), whereas boys' knowledge of animals (94%) is greater compared to girls (81.5%). Similar survey results have been replicated for adults in Anatolia (Ertuğ 2003), Benin (Boedecker et. al. 2014), Arbëresh in Lucania (Pieroni 2003). Authors suggest that the disparity may be since women and men perform different domestic tasks and are provided a different education. Such differences in conceptual framework reflects and is reflected also in dietary behaviors. Thus, for instance, the Culinia Indians of Western Amazonia divide food into two main classes based on "smell" and "wilderness," which are determined by food origins. The strong smell and the "intrinsic wilderness"[5] of the animals that live in the forest make them more suitable food for men (Pollock 1998). Nevertheless, the cooking process can remove or cover up the taste of "wilderness," rendering the food amenable to a greater percentage of women. Cooking thus moves food from one category to another not because of its direct effect on it but because it modifies its taste. The taste of the wilderness does not depend on the food taken in isolation but on the codified reaction to certain flavors. Now, the study of Culina shows precisely that the wilderness of food may depend on socially codified reactions that do not rely on the alleged wilderness of the food. Women and men within Culina Indians seem to abide by two incommensurable ontologies.[6] Moreover, both women and men agree that the cooking process turns wild food into a non-wild one. The ontology of wild food hence does not rely on naturalness but on social factors.

(iii) The third argument we present is *The diachronic Incoherence Argument*. The very same food can turn from wild to non-wild and from non-wild to wild across time by means of a switch in its social recognition. We have two kinds of examples to offer in this regard: cases of domestication that are not carried out by any physical modification of the food, and cases in which physical interaction with the food are not considered domestication (cfr. also Etkin 2000, esp. Ch. 3).

An instance of the first case, as sketched by Heywood (1999), are the Mayan gardens. These are obtained by cutting down parts of a forest while leaving several other trees and plants standing, so to compose a garden. The wild plants left standing are turned into non-wild ones just through an institutional act, namely the taking possession of the piece of land where they stand and turning it into a garden. Another instance comes from a survey of wild foods knowledge among Polish botanists carried out by Łuczaj and Kujawska (2011) that highlights

[5] We get back to the controversial use of "intrinsic" below.

[6] Of course, the genderization of food is not just a specific feature of wild food: it covers all food types, among many different cultures, including the Western, indeed see the *locus classicus* Adams (1990). Let us then consider the more general idea that what could seem just a pure conceptual difference between two kinds of knowledge about food is instead a difference on what counts as food for women and men.

the use of alien and ruderal plants as food in urban environments — the use of which has not been recorded in the past.

An instance of the second case is the practice of management aimed at developing the productivity of a forest that nevertheless is still considered wild. Cruz-Garcia (2017), for instance, shows that in a mestizo village in the Peruvian Amazon 67% of the 30 wild food plants were managed and almost all of them were also transplanted. Hence, despite their being managed, those plants were still considered to be wild.[7]

§2. A Gradient Framework for Wild Foods

The Nature View, as we saw, relies on two assumptions: (i) there is a difference between wild and domesticated foods and (ii) what is wild is defined as a relational property. In the previous section we especially focused on rebutting the first assumption arguing that it does not adequately take into account extant conceptions of wild foods and the way they evolve through time. The evidence used in our three arguments, however, turns out to be sufficient to debunk also the second assumption.

According to the Nature View, wild food is defined in relation to human beings. Food counts as wild when it holds the relational property of being at a certain *distance* to a community of humans. Such distance is spelled out in terms of some physical (e.g. spatial, temporal, geographical) interactions with the food itself and with its environment: the more frequent and likely the interaction between the food and the community, the less wild food is. Yet, as we have seen in the previous section, the Nature View fails to capture a coherent and comprehensive ontological concept of wild food, which is inclusive of the conceptual variations we witness across human communities.

In this paper we put forward a perspective that amends the Nature View, with the goal of more adequately including the complex and multifarious demarcation between wild and non-wild foods. Our suggestion is not to give up the relational perspective proper of the Nature View; yet, instead of *physical* interaction, we shall assess how wild food is based on the *institutional status* of the food-humans interaction. The relation between humans and wild food should then be a three-place relation consisting of the following three relata: some human being(s), food, and an institutional act. The third relatum ensures that the relation between the first two would assign the status of wild food to the second relatum. We analyze the interaction in terms of a gradient framework and, for this reason, we label our view a Gradient Framework for wild food.

The Gradient Framework for wild food rests on two core assumptions, namely that (i) the interaction between humans and that portion of the edible environment considered wild rests on institutional acts — which can or cannot correspond to a physical act — and that (ii) only those foods which have a suitable disposition are eligible to be considered wild when the interaction occurs. We are now going to refine our model so that it can account for multifarious

[7] As an anonymous reviewer suggests, another instance of this kind of incoherence can be found in the Huaorani of Ecuador. These do not distinguish between the productive and consumptive activities that shape the forest, on one hand, and their ecological view of the cosmos, conceived in terms of abundance and interlocked life cycles, on the other hand. Thus, they have an in-between approach insofar as, in spite of conceiving their active and physical interaction with the forest as management, they label its products as "gifts." See Rival 2012.

wild food ontologies, which vary across time, communities, and between groups within the same community. Moving from our two assumptions, we shall suggest two gradients for wild food ontologies, which we label respectively *institutional* and *dispositional*. By analyzing edible food through a relational framework composed of those two gradients we can explain the existence of "different catalogues of wild foods" providing at the same time a tool for making comparisons, discovering overlaps and similarities and probing the actual presence of incommensurability.

§2.1 Institutional Gradient

As we have seen, food is wild only with respect to some human beings whose collective imposition of a specific status turns an edible item into a wild one. Now, the Institutional Gradient describes the strength and the nature of the institutional act that turns a non-wild food into a wild, and vice versa. But, what is an institutional act? As Guala and Hindriks (2015: 178) put it, an institution can be understood either as a rule or as an equilibrium. According to the rule-based approach, an institution is a rule that sets up human social interaction. Whereas, according to the equilibria-based approach, an institution is a set of behavioural regularities. Besides, Guala and Hindricks argue that the two approaches can be merged insofar as they can be seen as complementary. We do not take a stance on which is the best interpretation of what counts as an institution. For our purposes, we just understand it as a shared social attitude or approach that regulates a set of behaviours. The types of facts dependent on collective agency that can affect the ontological membership of a food — in our case, bestowing upon a certain edible object the status of "wild" — comprises both physical and non-physical actions and varies from the local rules for forest management to the experience of famine, as well as peculiar kinds of manipulation of a (group of) living organism(s), governmental practices of landscape management, the adoption of tools, a traditional recipe, laws, cosmologies, names, rooted habits or responses to emergencies, gender, socio-economic conditions, and institutions (e.g. restaurants). However, it is important to note that such institutions could exert the power to change food's status if and only if collective intentionality assigns them this capacity (as in the example of the Culina Indians).

These social objects can interfere with the wilderness of food. As Borghini, Piras, Serini (2020) argue, food is a social entity: its biological components matters but its social status equally counts. If, on the one hand, food is constituted by material stuff necessary for our sustenance, on the other hand, there is more to food than its material constituents: it always has an institutional constituent as well, which is attached to rules and norms (Weiskopf 2018). The material and the institutional constituents of food are entrenched and the lines we use to separate food from non-food, good from bad, wild from domesticated are conceptually blurry. The division between humans and nature is not "once and for all" and it is both culturally constructed and constantly renegotiated. Is land appropriation natural? What about burning down land or transplanting a plant? There is not a norm of nature and a norm of culture to which wilderness should be contrasted with, nor there is a norm establishing a line of degrees of separation between the two poles of nature and culture. Human communities lay down a different relationship with their environment and their foods, and what marks the distinction between wild and non-wild foods is an institutional act that has the power to convert a wild

food into a non-wild one by making a *fictional line* between nature and culture. The Gradient Framework fits our intuition that a food is wild only in connection to human beings and it explains why two indiscernible actions have different consequences, namely one of the two can convert wild into non-wild whereas the other cannot, e.g., spread the seeds in a field and spread the mushroom spores in a forest. We are not arguing that an arbitrary act *per se* can turn an item into a wild or not-wild one, but instead that such action should be recognized as doing this work by means of an institutional act.[8]

§2.2 Dispositional Gradient

Our second assumption states that only foods with the right sort of *disposition* are eligible to be considered wild. In using this term, we follow longstanding philosophical literature. According to it, dispositions have some time other names, such as *capacities* or *powers*.[9] In a nutshell, a disposition of an object is the tendency of that object to manifest a certain property — a particular state or character or salient feature (like being wild, or fragile, or soluble) — under the appropriate conditions. It is important to stress that, in our account, dispositions may arise from physical properties (e.g. biochemical properties, such as solubility) or from social functions (e.g. when a food counts as a religious symbol). Thus, in our view, bay leaves manifest the disposition to count as wild food when, say, grown in the woods. The same disposition can be expressed in different manners; so, bay leaves can exhibit the disposition to count as wild foods also by growing spontaneously in a corner of the garden, or by being gathered by a wild food expert even in an urban context. On the other hand, certain entities can hardly acquire the status of wild in certain communities. This seems to be the case with marshmallows, for instance, that would not have the disposition to be gathered even if they would be found scattered in a forest.

To build a model of the Disposition Gradient, we distinguish three respects under which the gradient varies. (1) *The observer*. A food with the same disposition "reveals" itself in different manners according to the institutional acts that involve it. For instance, the very same salmon can be wild for a tourist fishing and non-wild for the breeder who seasonally practices fish stocking in the same lake, or – as the example of Larry and Otto will show in the next paragraph – it can be wild for an indigenous population and non-wild for another. (2) *The avenues for acquiring the disposition*. The disposition to counts as wild can be acquired through different actions, which as we have seen can or cannot involve material transformations. Now, within each conception of wild food, each given food has a limited array of avenues to count as wild. For instance, a plant can be turned into a wild food when gathered, while game cannot be gathered; a tuber cannot bite the hook and a trout cannot be dug up; game can be turned into a wild food when hunted, captured by a dog, accidentally hit by a car — avenues that are not

[8] Institutional acts — collective impositions of a certain status to a specific object — are mind-dependent but not always decision-dependent, namely, they are not always intentionally generated. Take for instance an economic recession: we consider it a social entity even if it is not intentionally generated by humans. See Thomasson 2009:549.

[9] For the sake of brevity, we do not spell out how such disposition precisely works or what is its nature, we just assume that an object should hold it to be considered wild. The very notion of disposition is disputed by philosophers and many different analyses have been put forward thus far. For a reconstruction of the debate see Mumford 2011.

open to a plant as, say, wood garlic. The avenues to count as a wild food do not concern only the ways in which a food is procured; for instance, some foods can remain wild even after being processed or cooked, while others do not; and some wild foods hold a stronger disposition to end up on shelves and be sold, among domesticated food. (3). *Disposition depth.* Finally, the disposition to be wild may be held with a different intensity. For instance, a plant may be regarded as *very/deeply* wild if the plant bears a relationship to its ecosystem in a way that is largely independent of human *fiat* and dates back centuries of millennia.

Embedding dispositions into the core machinery of the Gradient Framework has three major theoretical advantages. First, it avoids triviality. That is, in spite of the social relevance of wild food and the necessary institutional act that baptizes it as such, not every food can be wild. It should have some salient features that make it wild when they match the right stimulus. It explains why items such as pills and candy bars cannot count as wild foods under the cultural assumptions of those societies that produced them. Second, it allows the possibility of deep and shallow wild foods. That is, a food can hold the same disposition in different degrees and so it can be more or less wild. Third, it leaves open the possibility that a wild food has been non-wild and will be non-wild just because it has not matched or won't match the right stimulus.

§2.3 Illustrating the Gradient Framework

The Gradient Framework holds that a wild food object is at least in part abstract. Indeed, the institutional act assigns to food the property of being wild even in the absence of some physical changes. Let us look at an example to clarify this point further. Consider Larry, a salmon fished in the Columbia River (USA), and Otto, a salmon fished in the Tana River in Northern Norway. Larry has been raised in a hatchery placed beneath the Dworshak Dam, southeast of Columbia River, was fed a carefully selected diet, and has undergone severe medical checks. Otto has been raised just off the mouth of the Tana River, had the same kind of diet as Larry, and even the medical check has been quite similar. When we compare them with regard to their genetic import both Larry and Otto are different from their natural-born counterparts. Yet, while the Nez Perce, the indigenous people from Columbia River, consider Larry as a genuine instance of salmon, the Sámi, the indigenous people from Tana River, consider Otto as an adulterated salmon. As Ween and Colombi (2013) explained, the difference between Larry and Otto comes down to the different features of the salmon. According to the Nez Perce, Larry is genuine insofar as it is a "cultural keystone species," whereas Otto is not genuine according to Sámi for it bears human-induced genetic traits.[10]

According to Nez Perce, Larry is genuine, namely, it is wild, for it is a free creature that does not 'belong' to human beings. This is because Larry is a member of a species that is part of the cultural and spiritual framework of Nez Perce (Colombi 2012). The reason why a species

[10] How to draw the boundary between wild and non-wild salmon is far more complex, especially when it comes to salmon farming in Norway. Here, the line between farmed and wild - within and outside the farm - tries to separate the salmons that belong to aquaculture from those that belong to nature: practices that enact an ontological difference that recreational-fisher people have well in mind. What happens when cultured salmons escape (sometimes more than a million per year) is that distinguishing them from their wild/natural cousins becomes impossible after a couple years: the (lost) farm boundaries are replaced with genetic tests, another way of "making nature" (Law and Lien 2018:135-138). See also Lien (2015).

that dramatically changes its members through time is still regarded as a part of that framework must be found beyond the physical properties of the species. The same can be said for the members of that species. More in general, being a member of the wild food category always requires to be part of a more general non-physical framework of symbols, rituals, habits, norms, and so on. Frameworks as such may indeed be regarded as abstract and to be a wild food may be regarded as implying having at least an abstract part.[11]

The Gradient Framework, hence, gives rise to a notion of wild food in which there is an interaction between the physical and social world and in which wild food is not a sort of supernatural untouched item, but rather something that should be recognized as such by human beings.

§3 Fostering Dialogue between Ontologies

With the Gradient Framework we can bring to light the different and mutually inconsistent ontologies of wild food that the Nature View could not accommodate. In particular, the Framework makes room for the following sorts of ontologies :

- *Scientific ontology*: this is any ontology founding the models of research in the natural sciences. According to it, what is wild is picked from nature through an objective measurable criterion. Under ideal conditions, the criterion makes it possible, for any food *x,* to conclude whether *x* is a wild food or whether it is not. This sort of ontology founds the Nature View.

- *Traditional ecological ontology*: this is the umbrella category under which falls all the indigenous ontologies, which include wild food among their categories. Generally speaking, such categorization is guided by local clusters of properties, i.e., properties of the environment, local agricultural practices, and traditional beliefs.

- *Practical ontology*: this is the ontology that divides wild from non-wild on the basis of practical goals, interests, practices that are not based on traditional knowledge. For instance, such categorization can be learned through a *YouTube* video on fishing or foraging. Moreover, this is the ontology of the food market's actors who divide wild from non-wild based on flavour, origins (field, farm, forest, sea, etc.), or sellers (farmers, hunters, pickers, etc.).

- *Norms-dependent ontology*: this is the ontology-based on an axiological framework according to which what is wild is good (or bad) and what is not wild is bad (or good). The categorization is often employed via gradient (e.g. not-so-wild and hence not-so-good; or, not-so-wild and hence not-so-bad).

[11] We endorse a very minimal characterization of what is abstract, namely x is abstract iff it is neither physical nor mental. Abstract stands for any entity that cannot be defined solely in terms of its natural (i.e. physico-chemical-biological) properties; computers or phones, for instance, count as abstract under this conception, but it is a given that we engage with them. Species taxa, in this regard, count as abstract in so far as they are not merely derived from nature, but rather prescribed to it.

The four ontologies often overlap. However, sometimes they conflict with each other due to their different goals and benchmarks. That is, what is wild for one of the ontologies is not wild for another. Moreover, the aforementioned ontologies sometimes cannot properly explain some controversial cases in which the boundary between wild and non-wild is blurry. The Gradient Framework allows us to at least *represent* such disagreements; that is, it functions as an ontological model of wild food that can be used to represent quite different conceptions of wild food, hence to compare them and point out where the disagreement lies and how to possibly solve it. It is worth illustrating this point by means of an example.

In a recent paper, Neves and Heckenberger (2019) outline the twofold ontological framework of plant management in Amazonia. The section of the Amazon Rainforest along the banks of the Amazon river was one of the independent areas where agriculture originated at least 10000 years ago. Across the centuries, two main farming methods emerged: (M1) fields cultivated with a single selected crop, e.g., cacao, alongside (M2) scattered areas of the forest where perennial trees and spontaneous crops are managed and cultivated, e.g., the palm açaí, rubber trees, and Brazilian nut trees. Plots of land farmed with the latter method do not occupy small sites hidden deep inside the forest; rather, they occupy areas with highly-distinctive markers often known for generations. The key difference between methods M1 and M2 is that the former substantially modified the plants phenotypically and genetically by closer control of plant reproduction, whereas the latter method did not have such an effect over the plants.

Now, both methods M1 and M2 similarly contribute to the subsistence of the communities and both have a key place in the cultural and material life of the local communities. Are the plants farmed through M1 or M2 wild? Is one of the methods more or less invasive than the other?

On one hand, we could stress that, although the two methods do not differ in function, a biological difference in reproduction is enough to class the plants in two different ontological categories. This is the typical line held by the friend of the Nature View. Yet, despite the seeming objectivity of this criterium for sorting out wild plants, alternative criteria that are just as plausible could be devised.

A traditional ecological ontology would define wild food on the basis of rituals, traditions, collective experiences and, more in general, place-based collective intentionality toward the food. Particularly, whereas scientific ontology seeks universal properties (i.e., the probability to produce fertile offspring regardless of time or place), the traditional ecological ontology is based on site-specific properties, namely properties that are linked to an environment and the intergenerational knowledge on it (Pierotti 2011: 7-26). In the case in point, what counts to define wild food is hence the shared opinion of a community; if M1 and M2 are regarded as equally forms of engagement with the forest, then they deliver equally wild food. The practical ontology is tied to widespread knowledge learned through non-traditional media, e.g., internet, journals, and so on. What is wild in the case of Amazonia is then based on the goals, expectations, knowledge of an agent who has to make this distinction for her own purposes. The norms-based ontology ranks food from less to more wild according to an evaluative point of view (based on norms that found moral, political, aesthetic, legal, professional behaviours). In the case of Amazonia, the norms-based ontology will tend to characterize as wild foods all those items that respect some axiological standards widespread

within the community. For instance, conservative politics will include in the category of wild food as many items as possible to safeguard them as items worth to be preserved.

The Gradient Framework countenances such different ontologies, pointing out where the disagreement lies. Our proposal thus provides the initial steps to represent an important evaluative aspect of food – its being more or less wild – in a way that is more epistemically inclusive and conceptually nuanced.

§4 Conclusions

At the very beginning of the paper, we argued that there are at least three arguments against what we called the Nature View. Can they drastically backfire against the Gradient Framework? We maintain that not only our view is free of those counterexamples and it can easily accommodate them, but on top of that, we contend that those arguments can be fruitfully employed for endorsing our view.

The first argument shows that it is not the case that all cultures hold the category of wild food in their ontology. Our framework can overcome the problem since it states that wild food depends on the institutional recognition of it and, due to the deep cultural differences among cultures, not all the ontologies owe the same categories. The fact that an ontology lacks this category works in our favor as long as we hold that to be a wild food rests on some sort of social status imposed on an edible item and not on the natural properties of the item itself.

The second argument concludes that since not all the people in a given society acknowledge the existence of wild food, it does not exist as a natural category. However, the argument runs deeper than that insofar as it exposes that the nature of wild food as a social object depends on the right sort of social recognition, which is an institutional one, as the Gradient Framework assumes. Moreover, our view takes charge of the internal incoherence between different social groups within the same society. We explain such internal differences by simply pointing out that different ontologies can be referred to different social layers instead of that to society as a whole. By analogy, consider different religious beliefs that posit different spiritual status to the very same object, e.g., an animal or a natural event. The different ontological status of that object is explained simply in the difference between beliefs.

The last argument shows the social nature of wild food in an even more striking way when it concludes that the wilderness of a food does not depend on any physical factor but rather upon social practices. The argument indeed shows that certain foods are considered as wild despite their being cultivated. Therefore, there is no physical practice without social recognition. As far as a food is not wild or non-wild due to a physical practice, but rather due to the social recognition of the practice, it becomes clear that just the right sort of institutional framework can charge the status of social food to an edible item. Our model provides a good explanation of this phenomenon by stressing that every food-related practice reaches its aim just because it has the right sort of social recognition and hence not only thanks to its physicality.

Furthermore, our view countenances different ontologies — scientific, traditional, practical, norms-based — showing that what turns out to be wild for one could be not wild for another. Our view thus delivers a strong implicit insight: policy makers who work on food and

health should take into account this diversity while outlining public policies on food consumption, undernutrition, malnutrition, and even on conservation of food and natural heritage.

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