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Ecological Feminism and Ecosystem Ecology¹

KAREN J. WARREN and JIM CHENEY

Ecological feminism is a feminism which attempts to unite the demands of the women's movement with those of the ecological movement. Ecofeminists often appeal to "ecology" in support of their claims, particularly claims about the importance of feminism to environmentalism. What is missing from the literature is any sustained attempt to show respects in which ecological feminism and the science of ecology are engaged in complementary, mutually supportive projects. In this paper we attempt to do that by showing ten important similarities which establish the need for and benefits of on-going dialogue between ecofeminists and ecosystem ecologists.

Ecological feminism is a feminism which attempts to unite the demands of the women's movement with those of the ecological movement in order to bring about a world and worldview that are not based on socioeconomic and conceptual structures of domination. Many ecological feminists have claimed that what is needed is a feminism that is ecological and an ecology that is feminist (see King 1983, 1989). They have shown ways in which ecology, understood in its broadest sense as environmentalism, is a feminist issue.² What has yet to be shown is that ecology, understood in its narrower sense as "the science of ecology" (or, scientific ecology) also is or might be a feminist issue. Establishing *that* claim involves showing that ecological feminism makes good scientific ecological sense.³

In this paper we discuss ten noteworthy similarities between themes in ecological feminism and ecosystem ecology—similarities that show the two are engaged in complementary, mutually supportive projects. Our goal is modest and suggestive. We are *not* arguing for the stronger claims that ecosystem (or, more generally, scientific) ecology must be feminist, that feminists must be ecologists, or that these similarities establish that ecosystem ecology is feminist. To establish these claims, much more would be needed than is provided in this paper.⁴ Rather, we are identifying theoretical points of inter-

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section between ecofeminism and ecosystem ecology in the interest of furthering discussion on the nature and direction of future bridge-building between the two.⁵

ECOLOGICAL FEMINISM AND ECOFEMINIST ETHICS

We take ecological feminism to refer “to a sensibility, an intimation, that feminist concerns run parallel to, are bound up with, or, perhaps, are one with concern for a natural world which has been subjected to much the same abuse and ambivalent behavior as have women” (Cheney 1987, 115). Although there are a variety of ecofeminist positions (Warren 1987), the common thread that runs through ecofeminist scholarship is that the domination of women and the domination of nature are “intimately connected and mutually reinforcing” (King 1989, 18). All ecofeminists endorse the view that an adequate understanding of the nature of the connections between the twin dominations of women and nature requires a feminist theory and practice informed by an ecological perspective and an environmentalism informed by a feminist perspective (Warren 1987, 4-5).

Much of ecofeminist scholarship concerns the ethical nature of human relationships to the nonhuman natural world. Like feminist ethics generally, “ecofeminist ethics” includes a variety of positions. What makes ecofeminist ethics feminist is a twofold commitment to critique male bias in ethics and to develop analyses which are not male-biased (see Jaggar 1990, 23). However, ecofeminist ethics extends feminist ethical critiques of sexism and other social “isms of domination” to include critiques of “naturism,” i.e., the unjustified domination of nonhuman animals and nature by humans. As such, ecofeminist ethics critiques not only androcentric but also anthropocentric and naturist bias in ethics. Ecofeminist ethics is grounded in the assumption that the dominations of women and of nature are morally wrong and ought to be eliminated. Like feminist ethics (see Jaggar 1990, 24-5), the practical import of ecofeminist ethics is as a guide to action on issues in the pre-feminist, patriarchal present. This guidance is aimed at assisting persons in resisting sexist, naturist, and interconnected racist, classist, heterosexist practices, and in envisioning and creating morally desirable alternatives. The women-initiated non-violent Chipko movement begun in 1974 in Reni, India is one such alternative action (see Shiva 1988 and Warren 1988).

One way to image ecofeminist ethics is as a quilt-in-the-making (see Warren 1988, 1990). Like the AIDS Names Project Quilt, ecofeminist ethics is a quilt-in-process, constructed from “patches” contributed by persons located in different socioeconomic, cultural, historical circumstances. Since these patches will reflect the histories of the various quilters, no two patches will be just the same. Nonetheless, the quilts-in-process will each have borders that not only delimit the spatiotemporal dimensions of the quilt, but also put some

necessary conditions, “boundary conditions,” on what can become part of the quilt. What these boundary conditions do *not* do is delimit the interior of the quilt, what the design or actual pattern of the quilt will be. That design will emerge out of the life experiences, ethical concerns, and specific socio-economic historical contexts of the quilters (see Warren 1990).

What are some of the boundary conditions of ecofeminist ethics? Just what does, and what does not, belong on the quilt? Since ecofeminism is a critique of interrelated social systems of domination, no “isms of domination” (for example, sexism, racism, classism, heterosexism, naturism) belong on the quilt (Warren 1990). This means that any conceptual framework (or, set of basic beliefs, values, attitudes, and assumptions which grow out of and reflect one’s view of oneself and one’s world) which sanctions, justifies, or perpetuates these “isms of domination”—oppressive and patriarchal conceptual frameworks—does not belong on the quilt. What *does* belong on the quilt are those descriptions and prescriptions of social reality that do not maintain, perpetuate, or attempt to justify social “isms of domination” and the power-over relationships used to keep them intact. These will include patches that make visible and challenge local and global forms of environmental abuse, the disproportional effects of environmental pollution on women, children, the poor, dislocated indigenous persons, and peoples in so-called less developed countries; patches that provide present-day alternatives to environmental exploitation; patches that document and celebrate the morally respectful dimensions of women’s experiences with the nonhuman world; and patches that include the experiences of indigenous people, when those experiences are neither sexist nor naturist. Taken together, the patches on the quilt provide the ethical theorist with concrete, pictorial ways of understanding the nature of a morality which treats both women’s moral experiences and human interactions with the nonhuman natural world respectfully.

ECOSYSTEM ECOLOGY

Many controversies in modern ecosystem ecology about the nature of ecosystems can be understood as arguments between two approaches to the study of ecosystems: the “population-community” approach and the “process-functional” approach.⁶ The population-community approach focuses on the growth of populations, the structure and composition of communities of organisms, and the interactions among individual organisms. It is grounded in Darwinian theory of natural selection. It “tends to view ecosystems as networks of interacting populations whereby the biota *are* the ecosystem and abiotic components such as soil or sediments are external influences” (O’Neill et al. 1986, 8). The population-community approach typically is identified with the work of such ecologists as Clemens, Lotka, Gauss, and Whittaker.

In contrast, the process-functional approach is based on a quantitative, mathematical, thermodynamic, biophysical model which emphasizes energy flows and nutrient cycling. It assumes that the fundamental units of ecosystems include both organisms and physical components, biotic and abiotic components. The process-functional approach was developed during this century by such ecologists as Tansley, Lindeman, and Odum.

Although discussions of ecosystems ecology often present “the ecological perspective” as if there were only one perspective, debates arising from differences between the population-community and process-functional approaches to ecosystems ecology reveal that there currently is *no single model of ecosystems*.⁷ Furthermore, there is a third alternative way to conceive ecosystems. That alternative is “hierarchy theory” or what, for important feminist reasons, we prefer to refer to as “observation set theory.”⁸ We understand hierarchy theory to be the most viable attempt to date by scientific ecologists to provide an inclusive theoretical framework for the variety of ecosystem analyses. Ecologists such as O’Neill, DeAngelis, Waide and Allen are among its main advocates (O’Neill et al. 1986).

Central to hierarchy (observation set) theory is the notion of an *observation set*. O’Neill et al. describe an observation set as “a particular way of viewing the natural world. It includes the phenomena of interest, the specific measurements taken, and the techniques used to analyze the data” (1986, 7). Although specific problems always call for particular observation sets, theory making calls for consideration of multiple observation sets:

Each of these points of view emphasizes different phenomena and quite different measurements. But since neither encompasses all possible observations, neither can be considered to be more fundamental. When studying a specific problem, the scientists must always focus on a single observation set. However, when developing theory, many observation sets must be considered (O’Neill et al. 1986, 7).

According to hierarchy theory, both an adequate conception of the complexity of ecosystems and meaningful ecosystem comparisons require that one consider multiple observation sets.

Spatiotemporal scale is an important characteristic of an observation set both because it changes as the ecological problem changes and because “ecological principles often do not translate well across these scales” (O’Neill et al. 1986, 20). The meanings of such basic ecological concepts as “stability,” “equilibrium,” “temporary,” “enduring,” “local,” and “global,” are relative to some particular scale. Depending on the spatiotemporal scale used in any given observation set, “ecosystems have been seen as static or dynamic, as steady-state or as fluctuating, as integrated systems or as collections of individuals” (O’Neill et al. 1986, 20). For example, a forest stand can be looked at from an

organismic standpoint (e.g., as enduring, stable individual trees or populations of trees) or from an energy flow and nutrient cycling standpoint (e.g., as fluxes and flows of carbon and oxygen recycled through photosynthesis). Because the forest stand may accurately be viewed in either way, it is incorrect, in fact impossible, “to designate *the* components of *the* ecosystem”—the designation depends on the spatiotemporal scale and changes as that scale changes (O’Neill et al. 1986, 83).

The basic contribution of hierarchy (observation set) theory is to call attention to the importance of observation sets and spatiotemporal scales to ecosystem ecology. The complexity of natural systems is overlooked or discounted when one focuses on a single observation set. An exclusivist “either-or” approach to describing or studying ecosystems (e.g., an exclusivist population-community or functional process approach) is thereby viewed as based on a false dichotomy which results in an inadequate, because incomplete, *theory of ecosystems* (O’Neill et al. 209).⁹

SIMILARITIES BETWEEN ECOFEMINISM AND ECOSYSTEMS ECOLOGY

We are now in a position to show some of the similarities between ecofeminism (particularly ecofeminist ethics) and ecosystem ecology seen through the lens of hierarchy (observation set) theory. These similarities suggest various ways in which ecofeminism and ecosystem ecology inform and support one another.¹⁰

First, central to hierarchy theory is the view that space-time dependent observation sets provide different vantage points or frameworks from which one makes ecological observations and engages in ecological theory building. It is through the notion of multiple observation sets that the idea of one single model of ecosystems is rejected. In this respect, hierarchy theory rules out any notion of an observation set free or *decontextualized* science: how one views ecosystems will depend on the observation sets one employs.

One is immediately struck by the similarity between the hierarchy theorist’s emphasis on observation sets, “windows through which one views the world,” and the ecofeminist’s emphasis on “ways of thinking,” “world-views,” and “conceptual frameworks,” especially oppressive and patriarchal ones (see Warren 1987, 1990). The notion of a patriarchal and oppressive conceptual framework is as central to ecofeminism and ecofeminist ethics as the notion of an observation set is to hierarchy theory in ecosystem ecology: one could not generate the observations and conclusions of each without them. An attention to observation sets is also an acknowledgment of the importance of the contexts in and through which one observes, measures, and theorizes. One’s observation set, like one’s conceptual framework, will quite literally shape and affect what one sees; both provide a *context* for theorizing.

There are at least three interrelated reasons why attention to context is of importance to ecofeminist ethics. First, *what* a thing (person, community, population, species, animal, river) is, is in part a function of *where* it is, a function of the relationships in which it stands to other things and to its history, including (where applicable) its evolutionary history. It is this attention to *place* that fuels bioregionalist ecofeminism (see Plant, 1990) and the importance many ecofeminists give to narratives, myth, and ritual in the construction of ecofeminist ethics (see Cheney 1987, 1989a; Diamond and Orenstein 1990; Warren 1990). Second, an understanding of context is important in assessing the putatively universal claims of reason and ethical deliberation. Feminist worries about ahistorical and allegedly gender-neutral conceptions of reason and rationality in the Western philosophical tradition provide one way of understanding the importance of context—historical location and gender identity in theory building in the pre-feminist present.¹¹ Ecofeminist theory building seeks to rid prevailing conceptions of reason, rationality, and morality of whatever male and naturist bias they have.

More than this, however, and this is our third point, an attention to context permits one to stress the idiographic dimension of our ethical journeys through this world and of ethics itself. Holmes Rolston has been a strong advocate for recognizing this aspect of ethical thought in environmental ethics, and this advocacy derives from his understanding that a thing is what it is in part because of where it is. As Rolston puts it:

An ethics should be rational, but rationality inhabits a historical system. The place that is to be counted morally has a history; the ethics that befits such a place will take on historical form; the ethics will itself have a history. The place to be mapped . . . will have twin foci. One focus will be nomothetic, recurrent; the other will be idiographic, uniquely particular. . . .

The rationality of the ethic, as well as the area to be mapped, will be historical. That is, logic will be mixed with story. The move from *is* to *ought* . . . is transformed into movement along a story line (Rolston 1988, 341-42). An attention to context does not split off the idiographic as what ethics permits, provided that the universal demands of morality are met. Instead, the ethically idiographic is the very center of each individual's ethical life; it is the place from which we not only test the claims of the "universal" and the "rational," but from which we construct the "universal" claims of "rationality." In this way, the "universal" and the "rational" are always in some manner or other inflected with historicity. The "universal" and "rational" are themselves moments in a story, reflecting some observation set.

The ecological dimension of ethical reflection stems in large part from the fact that ecology is context (or observation set) dependent. We agree with Brennan that:

what ecology shows is not simply that the context makes a difference to the kind of action we engage in. It shows, rather, that what kinds of things we are, what sort of thing an individual person is, and what sort of options for fulfillment and self-realisation are open, are themselves very much context-dependent (Brennan 1988, 162).

One way ecofeminist ethics centralizes this context-dependent feature of ethical discourse is by conceiving of ethics as growing out of what Cheney (1987, 144) calls defining relationships, that is, relationships understood as in some sense defining who one is. These relationships include those of moral agents with the nonhuman natural world, including animals.

Second, hierarchy theory provides a methodological means of investigating ecological problems. According to hierarchy theory, the “ontology” that emerges from any particular investigation is relative to the observation set that produces it. This does not make that ontology “subjective” in any pernicious sense; but it does mean that to accept a solution to a particular problem is not thereby to make any ontological commitments in any absolute (i.e., non-observation set dependent) sense. Thus, the methodology of hierarchy theory makes it imperative that the epistemological requirements of particular problems, given in terms of observer-affected observation sets, dictate to ontology (rather than the converse); ecology does not determine that an ecological problem must be pressed into the shape of a preferred ontology. According to hierarchy theory, it would be quixotic to think in terms of striving for an articulation of *the* structure (even *the* hierarchical structure) of an ecosystem.

As a methodological stance, hierarchy theory rejects the view that there is only one way to describe ecological phenomena. Which description is appropriate will depend upon the observation set and on what it is one is attempting to describe, explain, or predict. In this respect, hierarchy theory privileges methodological and epistemological considerations over ontology, the attempt to specify what is “really” in the world. The ontology embedded in both explanation and phenomena being explained is always a function of the appropriate observation set. Any grand attempt to provide one metaphysics of morals seems doomed because misguided: it puts the metaphysical/ontological cart before the epistemological/ methodological horse.

Like hierarchy theory, ecofeminism makes no attempt to provide *the* point of view, one single model, an “objective” (i.e., value-neutral, unbiased) point of view—none, that is, beyond the very “boundary conditions” of ecofeminism itself. Ecofeminists criticize up-down, value-hierarchical, value dualistic thinking which they say characterizes Western philosophical thinking about women and nature as being both patriarchal and insular—as if what is observed, prescribed, and theorized are independent of *any* conceptual framework (Gray 1981; Griffin 1978; King 1983b, 1989; Ruether 1975; Warren 1987, 1988,

1990). Ecofeminists acknowledge up front their basic feminist value commitments: the twin dominations of women and nature exist, are wrong, and ought to be eliminated. Ecofeminists see these twin dominations as social problems rooted in very concrete, historical, socioeconomic conditions, as well as in oppressive, patriarchal conceptual frameworks that maintain and sanction these conditions.

As a methodological and epistemological stance, all ecofeminists centralize, in one way or another, the “voices” and experiences of women (and others) with regard to an understanding of the nonhuman natural world. Like hierarchy theory, this is not to say that an ecofeminist “ontology” does not include material objects—real trees, rivers, and animals. It does! But it acknowledges that these objects are in important senses both materially given and socially constructed: what counts as a tree, river, or animal, how natural “objects” are conceived, described, and treated, must be understood in the context of broader social and institutional practices. Centralizing women’s voices is important methodologically and epistemologically to the overall critique and revising of the concept of nature and the moral dimensions of human-nature relationships.

Third, hierarchy theory is antireductionist. Population-community based observation sets cannot be reduced to process-functional based observation sets (or vice versa). Consequently, a functional-process understanding of organisms does not render an “object ontology” of discrete organisms (trees, rivers, animals) obsolete, or render organisms mere conduits or configurations of energy, as environmental ethicist J. Baird Callicott has claimed (1986). There is *no* ontologically prior or privileged or fundamental description of nature. Hierarchy theory rules out a view of individual entities (e.g., animals) as ontologically parasitic on something more fundamental (e.g., energy flows or nutrient cycles), a point we return to shortly. If hierarchy theory is correct, then in contemporary scientific ecology, there is no place for a notion of degrees of reality. *Both* individuals and energy flows are real.

Because it is antireductionist, hierarchy theory centralizes diversity; it takes difference or diversity to be a fundamental feature of phenomena, not reducible to talk of the “sameness” of organisms or the “oneness” of energy flows. That would be the case only if one approach had epistemological, metaphysical, or ontological priority over the other. In fact, one of the most interesting features of hierarchy theory is that it privileges the notion of diversity or difference when studying interactions between different subsystems (“holons”) of ecosystems, *and* the notion of commonalities among members of the same subsystem. Hierarchy theory is therefore a framework which provides for both an ecology of differences and an ecology of commonalities, depending on the context and observation set.¹²

Ecofeminist ethics is also antireductionist. It is a structurally pluralistic framework that centralizes both diversity or difference (e.g., among women,

among people of color, between humans and nonhumans) *and* commonalities (e.g., among women, among people of color, between humans and nonhumans). A nonreductionist ecofeminist stance acknowledges differences between humans and members or elements of nonhuman nature, while nonetheless affirming that humans are animals and members of an ecological community. An ecology of differences and commonalities fits well with an ecofeminist politics and ethics of differences and commonalities.

Fourth, hierarchy theory is an inclusivist theory that offers a framework for mediating between historically opposed approaches to ecosystem ecology, making a central place for the insights of each without inheriting the defects of either when viewed exclusively as the right or correct way to study ecosystems. Hierarchy theory suggests that the future of at least ecosystem ecology may well lie in successfully integrating these two approaches into a model that centralizes the importance of observation sets and locates any particular ecosystem analysis in or relative to a particular observation set.

Similarly, ecofeminist ethics is an inclusivist ethic (see Warren 1990) that offers a framework for mediating between two historically opposed approaches in environmental ethics: deontological rights-, virtues-, or holistic-based ethics and consequentialist-based ethics. Warren has argued that ecofeminism “involves a shift *from* a conception of ethics as primarily a matter of rights, rules, or principles [whether deontological or consequentialist] determined and applied in specific cases to entities viewed as competitors in the contest of moral standing,” to one which “makes a central places for values . . . that presuppose that our relationships to others are central to our understanding of who we are” (Warren 1990, 143). An ecofeminist ethic may involve a commitment to rights in certain contexts and for certain purposes (for example, in the protection of individual animals against unnecessary pain or suffering); it may use consequentialist considerations in other contexts and for other purposes (for example, when considering behavior toward ecosystems). Like hierarchy theory, ecofeminist ethics is one possible framework for developing such an inclusivist alternative.¹³

As a fifth and related point, hierarchy theory provides a framework for viewing historically opposed approaches as complementary. Dualisms fade into the complexity of multiple vantage points and find complementarity where once there was only oppositionality (e.g., stability or instability, diversity or sameness, energy flow or discrete organism). This rejection of oppositional polarities is accomplished *not* by reducing population-community to process-functional accounts, or vice versa, or by reducing both to a still more basic or primitive ontological framework; it is accomplished by providing a unifying framework for studying and relating to one another various analyses, each with their own epistemology and context-dependent ontology. As a “unified theory,” it is a unity which does not erase difference.

The earliest ecofeminist literature was grounded in a rejection of oppositional value dualisms (see Gray 1981; Griffin 1978). Ecofeminist ethics needs to follow suit¹⁴ by emphasizing difference in a way that does not reduce difference to the terms of some (reductionist) privileged discourse.

Sixth, because it centralizes diversity, hierarchy theory complexifies rather than simplifies the variety of ways natural phenomena can be described. It does this by emphasizing the sorts of interrelationships that exist among organisms and the relevance of scalar and other dimensions to the observations made. It rejects exclusivist models of ecosystems (i.e., population-community or process-functional models) that simplify rather than complexify the nature of ecosystems, typically by an imposed naive reductionism that focuses on sameness, similarity, or shared traits. Interrelationships among biotic and abiotic nature that are based on a single, unitary model of ecosystems are viewed as misrepresentations of the variety of relationships in nature.

Similarly, as a context-dependent, inclusivist framework that centralizes difference, ecofeminism complexifies the variety of ways in which ethics is conceived and practiced, in which humans may be in relationship with others (including the nonhuman natural environment), and in which human-nature, women-nature connections may be described. As we have argued elsewhere (Warren 1988, 1990; Cheney 1987, 1989a, 1990), ecofeminist ethics complexifies the moral arena by making a central place for values often lost or overlooked in mainstream ethics (e.g., values of care, love, friendship, diversity, appropriate reciprocity) in the context of human-nonhuman relationships. This includes taking seriously the sort of “indigenous technical knowledge” that women and others who work closely with the land have (see Warren 1988).

Seventh, and perhaps most importantly for ethics, hierarchy theory permits meaningful ecological talk of “individual” and “other” without the caveat that these are nonprimitive notions, ultimately reducible to notions of energy flow and pattern. At the same time, it also permits meaningful talk of “whole-system” behavior in both population-community and process-functional terms, neither of which is reducible to the other. Hierarchy theory thus permits meaningful discussion of discrete (and, in varying degrees and modes, autonomous) individual objects as well as of whole systems. Hierarchy theory shows that “object theory” is not obsolete; it is an acceptable and alternative way to describe organisms—appropriate for some observation sets and not others.

This alternative way of describing ecosystems is accomplished in hierarchy theory in part by an eighth characteristic, one shared by ecofeminism and ecofeminist ethics: it encourages a network or relational view of organisms, whether conceived as “knots in a biospherical web of relationships” or as separate (although not isolated or solitary), discrete individuals, members of species, populations, or communities. In both cases, ecosystems are networks,

either networks of interacting individuals, populations, and communities or of interacting energy and nutrient flows and cycles.

This dual acknowledgment of the autonomous existence of individuals (characteristic seven) and the relational existence of individuals in webs of relationships (characteristic eight) fits nicely with those feminist ethics which insist that it is of primary importance to acknowledge and foster individual autonomy (after all, oppressed persons are still trying to have their autonomy recognized) *and* to recognize that people exist in webs of relationships that are to some extent constitutive of who they are. Much work in feminist ethics (often strongly influenced by the work of Gilligan 1982) has emphasized the centrality of relationships in women's ethical thinking. Others (e.g., Friedman 1989 and Young 1986) have critiqued communitarian ideals and stressed the importance for women of autonomy and a politics of difference in a world in which the penchant for defining oneself relationally can easily be turned into sacrifice of the self. Many feminists have been concerned to develop conceptions of self and society that avoid the problems of what Alison Jaggar calls abstract individualism, that is, the position that it is possible to identify a human essence or human nature that exists independently of any particular historical context (Jaggar 1980, 29).

This concern carries over into ecofeminist ethical reflection on nature. An ecofeminist ethic that emphasizes the nature of individuals or "others" as beings-in-relationships permits meaningful ecological discussion of *both* "self" and "other," of "individuals" (populations, communities) and "webs of relationships." For ecofeminists the contexts and relationships that help construct "the self" include ecological contexts and relationships with non-human nature. For an ecofeminist one cannot give an adequate account of what it is to be human in terms that do not acknowledge humans as members of ecological communities.

That hierarchy theory provides for meaningful discussion of "self" and "other" suggests one reason ecofeminists are and ought to be suspicious of some of the claims about scientific ecology made by other, allegedly "minority position" environmental ethics. For example, in "The Metaphysical Implications of Ecology," Callicott argues that scientific ecology "undermines the concept of a separable ego and thus renders obsolete any ethics which involves the concepts of 'self' and 'other' as primitive terms" (1986, 301). Callicott's overarching conclusion is that scientific ecology ontologically subordinates matter and living natural objects (e.g., humans, deer, trees) to energy flows, making an "object ontology" inappropriate as an ecological description of the natural environment.

Views such as Callicott's are not borne out by state-of-the-art hierarchy theory in ecosystem ecology. Hierarchy theory shows that even if at some level of inquiry it is plausible to hold that the universe and everything in it are constituted of energy, that everything is a perturbation in an all-encompassing

energy field, this does *not* imply that entities revealed through other observation sets (e.g., as individual organisms, populations, or communities) are not “primitive,” that they are reducible to the ontology of some other observation set. Hierarchy theory not only permits but demands meaningful ecological discussion of “self” and “other” on the one hand *and* of “whole-system behavior” on the other. Certain ecological observation sets relevant to ethics yield an ontology of autonomous individual organisms interacting with one another. Other observation sets paint a holistic picture of ecosystem function. But there is no a priori or ecological reason (other than a misguided reductionism) to give (ethical or metaphysical) pride of place to the latter.¹⁵

What is crucial is our particular mode of access to the objects of our moral concern. We need to formulate our “ethical ontology” and ethical theory in light of an understanding of our epistemological relationship to the objects of moral concern. In terms of actual practice, we certainly can say things, significant and important things, about individuals without drawing in the rest of the universe. We can gain at least certain kinds of knowledge of individuals without an analysis of the relations that constitute or produce the individual as the individual it is; that is, we can come to know the individual without knowing anything much about the shaping factors.

Ninth, hierarchy theory makes a place for whatever “hard” scientific data scientific ecology produces regarding the natural environment, although it always contextualizes that data relative to a given observation set with specific scalar dimension. It is *always* scientifically relevant to ask about particular observation sets within which and from which the “hard” data are gathered. According to hierarchy theory, all scientific data and questions of ecology come with and have a context; proper scientific theorizing involves making visible the observation sets (contexts) within which one conducts the observations and analyses. Hierarchy theory thereby leaves open the door for saying that whatever ecologists learn about organisms or ecosystems from computer modeling techniques, mathematical or statistical models, or data projections conducted within the closed system of a laboratory may not tell us all there is to know, or even the most relevant information and material we need to know, about terrestrial organisms and ecosystems—i.e., nature outside the laboratory. But we may need to know it, nonetheless, to solve pressing environmental problems.¹⁶

Ecofeminism welcomes appropriate ecological science and technology. Environmental problems demand scientific and technological responses as part of the solution. These “data” represent a piece of the ecological pie. What ecofeminists insist on is that the perspectives of women and indigenous peoples with regard to the natural environment also be recognized as relevant “data.” As a *feminism*, ecofeminism insists that relevant “data” about the historical and interconnected twin exploitations of women (and other oppressed peoples) and nature be included in solutions to environmental problems; as an

ecological feminism, *ecofeminism* insists upon the inclusion of appropriate insights and “data” of scientific ecology. What ecological feminism opposes is the practice of one without the other.

Lastly, hierarchy theory invites a reconceiving of ecosystems research and methodology, objectivity, and knowledge. In its rejection of the view that there is one ahistorical, context-free, neutral observation stance, in its incorporation of multiple observation sets and its refusal to privilege the ontology of one over the ontology of any other, in its acceptance of multiple understandings of ecosystems and the complexity of the relationships that exist within them, hierarchy theory exemplifies, to some extent, what Donna Haraway (1988) has called embodied objectivity. What is obviously absent in hierarchy theory is an ethical and political dimension, however, which is present in Haraway’s notion.

Objectivity, as Haraway puts it, is “about particular and specific embodiment and definitely not about the false vision promising transcendence of all limits and responsibility” (Haraway 1988, 582-83). Because all knowledge is “situated knowledge” (Haraway 1988, 581), no knowledge is innocent; all knowledge involves risks and implies responsibility. As Haraway argues:

admitted or not, politics and ethics ground struggles over knowledge projects in the exact, natural, social, and human sciences. Otherwise, rationality is simply impossible, an optical illusion projected from nowhere comprehensively (1988, 587).

The ethical and political dimensions of knowledge and objectivity suggest an important contribution that *ecofeminism* can offer hierarchy theory. The “partial knowledges” that emerge from various observation sets do not constitute an innocent plurality of bodies of knowledge. Both the positions taken (with their resultant situated knowledges) and the connections made are “power-sensitive” (Haraway 1988, 589). Situated knowledges are partial knowledges,

not partiality for its own sake but, rather, for the sake of the connections and unexpected openings situated knowledges make possible. Situated knowledges are about communities, not about isolated individuals. The only way to find a larger vision is to be somewhere in particular. (Haraway 1988, 590)

Since *ecofeminism* sees theory building, objectivity, and knowledge as historically situated, illuminated, and created, theory is not something static—it is both “situated” (in Haraway’s sense) and “in process,” emerging from people’s different experiences and observations and changing over time. It is like quilting.

Are there, then, any ethical implications of ecosystem ecology? It depends. The ethical implications of ecosystem ecology, like the hierarchy theory that

might be used to support them, only have axiological status within and from the vantage points of certain observation sets. As ecologist Mark Davis claims of any ecological model, “any set of ethical implications derived or inspired from the model must always be regarded as only one of many possible such sets” (Davis 1988, 4).

The contextualist conception of objectivity at work in hierarchy theory is consistent with the notion of objectivity being developed in some feminist postmodernist theorizing. The problem faced by postmodern science, as Haraway puts it, is “how to have *simultaneously* an account of radical historical contingency for all knowledge claims and knowing subjects . . . *and* a no-nonsense commitment to faithful accounts of a ‘real’ world” (Haraway 1988, 579). But just as Haraway would insist upon an ethical and political basis for objectivity in the sciences, so she would add the idea of the “object” of knowledge as an active agent in the construction of knowledge. She rightly points out that feminists have been suspicious of scientific accounts of objectivity that portray the “object” of knowledge as passive and inert. Haraway’s view in response to this passive understanding of the object of scientific inquiry is as follows:

Situated knowledges require that the object of knowledge be pictured as an actor and agent, not as a screen or a ground or a resource, never finally as slave to the master that closes off the dialectic in his unique agency and his authorship of “objective” knowledge. The point is paradigmatically clear in critical approaches to the social and human sciences. . . . But the same point must apply to the other knowledge projects called sciences. (Haraway 1988, 592-93).

If we understand the objects of scientific inquiry as actors and agents *and* insist upon an ethical and political basis for objectivity, accounts of the world based “on a logic of ‘discovery’ ” give way to “a power-charged social relation of ‘conversation.’ The world neither speaks itself nor disappears in favor of a master decoder” (Haraway 1988, 593). In this regard, Haraway herself calls attention to the promise of ecofeminism:

Ecofeminists have perhaps been most insistent on some version of the world as active subject. . . . Acknowledging the agency of the world in knowledge makes room for some unsettling possibilities, including a sense of the world’s independent sense of humor. . . . There are . . . richly evocative figures to promote feminist visualizations of the world as witty agent. We need not lapse into appeals to a primal mother resisting her translation into resource. The Coyote or Trickster . . . suggests the situation we are in when we give up mastery but keep searching for

fidelity, knowing all the while that we will be hoodwinked. . . .
 We are not in charge of the world. We just live here and try to
 strike up noninnocent conversations (Haraway 1988, 593-94).

We agree with Haraway's concluding words: "Perhaps our hopes for accountability, for politics, for ecofeminism, turn on revisioning the world as coding trickster with whom we must learn to converse" (Haraway 1988, 596). The significance of the finding that ecofeminism and ecosystem ecology are involved in complementary, mutually reinforcing projects would then lie in what they can contribute together to our conversation with the world as "coding trickster."

NOTES

1. We gratefully acknowledge the helpful comments received on an earlier draft of this paper from Roxanne Gudeman, Donna Haraway, Sandra Harding, Alison M. Jaggard, Ruthanne Kurth-Schai, Toby McAdams, Michal McCall, Lindsay Powers, Truman Schwartz, Geoff Sutton, Nancy Tuana, Leslie Vaughn, Anthony Weston, and Cathy Zabinski.

2. See ecofeminist critiques of environmental practices cross-culturally in Caldecott and Leland (1983), Diamond and Orenstein (1990), Merchant (1980), Peterson and Merchant (1986), Plant (1989), Shiva (1988), and Warren (1988).

3. Showing that scientific ecology is a feminist issue is not as easy as one might expect. As scientific ecologists are quick to point out, there is a difference between the ecology movement (or, popular environmentalism) and the science of ecology. Even if the women's movement and the ecology movement are inextricably connected, and even if understanding the connections between the domination of women and the domination of nature is crucial to an adequate feminism, environmentalism, or ethic, still, none of this shows any respects in which the *science* of ecology must be feminist. In this paper, we attempt to put into place some considerations which bear on *that* issue.

4. In helpful comments on an earlier draft of this paper, Sandra Harding pointed out that even if there are striking similarities between ecological feminism and ecosystem ecology, there might be very good reasons for feminists to reject some claims of ecosystem ecology, and vice versa. One such reason would be the inattention to issues of power in ecosystem theory construction and practice. Since an analysis of power is central to feminist critiques of socially constructed "isms of domination," one would need very good reasons for accepting *as feminist* any theory or practice in scientific ecology which did not include an analysis of power and power-over relationships.

5. Our discussion of ecological feminism is limited to emerging themes in ecofeminism and ecofeminist ethics which are not tied to any one feminism. This is because there is not *one* ecological feminism anymore than there is *one* feminism; the varieties of ecofeminisms will reflect differing feminist commitments of liberal, marxist, radical, socialist feminisms as well as feminisms of women of color (nationally and internationally). Similarly, our discussion of scientific ecology is limited to ecosystem ecology, since it is ecosystem analysis that is the focus of much of the current literature

in environmental ethics on the ethical or metaphysical implications, if any, of ecology (see Brennan 1988; Callicott 1986; Cheney 1991b; Golley 1987; Rolston 1988, 1989).

6. We express our gratitude to Mark Davis, Department of Biology and Director of Environmental Studies at Macalester College, for the information he provided about the population-community and functional-process approaches to ecosystem ecology and hierarchy theory. Much of that information is presented in his unpublished article "Should Moral Philosophers Be Listening to Ecologists?" (1988).

7. There are also feminist reasons to worry about construing these two approaches as the only approaches to studying ecosystems, reasons having to do both with a general concern about theoretical descriptions of material reality in terms of mutually exclusive polarities. (See, e.g., Gray, 1981.)

8. Insofar as so much feminist, including ecofeminist, theory has focused on a critique of value hierarchical thinking and its function in creating, maintaining, and perpetuating social systems of domination, the name "hierarchy theory" is most unfortunate from a feminist point of view. In her comments on an earlier draft of this paper, Alison Jaggar suggested that the name is "toxic" and could well predispose feminists to be antagonistic towards hierarchy theory from the outset. Since, as will be shown, the notion of an "observation set" is central to hierarchy theory and yet does not connote problematic value hierarchies, we have chosen to refer to hierarchy theory frequently throughout this paper as "hierarchy (observation set) theory." (We do not discuss here that aspect of hierarchy theory which gives it its name, though we do in our forthcoming book *Ecological Feminism*, Westview Press.) If it were not for the established usage of the expression "hierarchy theory" within the scientific ecological community, we would refer to the theory simply as "observation set theory."

9. O'Neill et al. stress that they have exaggerated the differences between the population-community and process-functional approaches and that "few ecologists would hold to either extreme of the spectrum" (1986, 10). The distinction between the two approaches is better viewed on a continuum, with the population-community and process-functional approaches at each end and ecologists "drawn in one direction or the other by the specific problems that interest them" (1986, 10).

10. That the discussion format moves from hierarchy (observation set) theory to ecofeminism is not intended to privilege either perspective. Furthermore, more space is provided below to ecosystem ecology when discussing similarities than to ecofeminism for two main reasons: first, there is a virtual absence in the literature of ecofeminism of any attempt to spell out the details of just how ecological feminism might draw support for its position from, or impart its own insights to, ecological science. To begin to remedy this omission, we deliberately have chosen to focus on ecosystem ecology (rather than on ecological feminism) and *then* show important similarities between the two—similarities that are more detailed and specific about "ecology" than are general appeals to the importance of ecosystems, interconnectedness among life forms, or ecological well-being to the survival of the planet. Second, we have presented elsewhere our views on ecological feminism and ecofeminist ethics (Cheney 1987, 1989a, 1991a; Warren 1987, 1988, 1990) and did not want to duplicate those efforts here.

11. For essays and a literature overview on this issue, see the American Philosophical Association *Newsletter on Feminism and Philosophy* Special Issue on "Reason, Rationality and Gender," edited by Nancy Tuana and Karen J. Warren, vol 88, no. 2 (March 1989).

12. We develop this argument in more detail in our forthcoming book *Ecological Feminism*.

13. Warren has argued that ecofeminist ethics needs to evaluate ethical claims partly in terms of a condition of inclusiveness: *Those claims are morally and epistemologically favored (preferred, better, less partial, less biased) which are more inclusive of the perspectives and felt, lived experiences of the most amount of people, particularly including the perspectives and experiences of oppressed persons* (Warren 1988, 1990).

14. We say “needs to” because some ecofeminists have been criticized for substituting a value-hierarchical “women are closer to nature than men” ontology and ethics for an unacceptable patriarchal value-hierarchical schema which puts nature and what is female gender-identified together as inferior and opposed to that which is male gender-identified. The criticism is that the very oppositional dualism which prompts the question “Are women closer to nature than men?” is itself the problem. Switching the answer by elevating women and nature (in opposition to men) only perpetuates the problem. (See Griscom, 1981; King, 1981; Ortner, 1974; Warren, 1987.)

15. The implication is clear: just as “it is quite feasible and even reasonable to maintain an individualistic (i.e., Gleasonian) concept of the community and a holistic concept of ecosystem function” (O’Neill et al. 1986, 189) so too it is quite feasible and reasonable to understand the moral community as consisting, in part, of autonomous agents with properties in their own right while at the same time treating that community as in some respects holistic.

16. A popular environmentalist slogan, sometimes endorsed by ecofeminists, is that everything is connected: a tug on any part of the system has an effect on every other part of the system. This image of ecosystems is one that O’Neill et al. take great pains to dispel (86). Critical to the stability of an ecosystem is the relative insulation or *disconnection* of sub-systems (“holons”) from one another (with strong interaction within holons and weak interaction between holons). Overconnectedness in a system, where tugs on any part of the system produce effects on all parts of the system, are *unstable* (94). This perspective renders problematic the oft-repeated remark that ecology demonstrates that everything is connected with everything else— the interconnection is only within holons, not between holons.

An adequate ecofeminist ecology, then, must acknowledge that the world, so to speak, “strives” to organize itself into discrete and relatively autonomous holons as a condition of its own stability. This is at least as important a feature of our world as is its connectedness. And, indeed, individuals still come into their own with the same sterling ontological credentials as the energy flow patterns which emerge from process-functional analyses. Everything may be tied to everything else in *some* sense, but hierarchy (observation set) theory suggests that it is not in any metaphysically reductionist, holistic sense.

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