Convergence and Contextualism: Some Clarifications and a Reply to Steverson

Bryan G. Norton*

The convergence hypothesis asserts that, if one takes the full range of human values—present and future—into account, one will choose a set of policies that can also be accepted by an advocate of a consistent and reasonable nonanthropocentrism. Brian Steverson has attacked this hypothesis from a surprising direction. He attributes to deep ecologists the position that nonhuman nature has intrinsic value, interprets this position to mean that no species could ever be allowed to go extinct, and proceeds to show that my commitment to contextualism prohibits me from advocating the protection of species universally. In response, I show, by reference to recent scientific findings, how difficult it is to defend species preservation in all situations. In particular, I argue that Steverson’s appeal to a possible world in which we have nearly complete biological knowledge misses the point of the convergence hypothesis. It is an empirical hypothesis, with significant indirect, and some direct, evidence to support it. Although it is a falsifiable hypothesis about real-world policies, it cannot be falsified by a contrary-to-fact case.

INTRODUCTION

Brian Steverson has recently criticized my convergence hypothesis, arguing that the hypothesis—when articulated in conjunction with my contextualist methodology—fails because contextualism does not support the strong intuitions of deep ecologists in favor of species preservation.1 The convergence hypothesis, which I have offered as an alternative to the traditionally divisive characterization of environmentalists as split between “shallow,” anthropocentric, resource managers and “deep,” nonanthropocentric, environmental radicals, states that provided anthropocentrists consider the full breadth of human values as they unfold into the indefinite future, and provided nonanthropocentrists endorse a consistent and coherent version of the view that nature has intrinsic value, all sides may be able to endorse a common policy direction.2 The centerpiece of Steverson’s argument is a proof that...

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1 In “Contextualism and Norton’s Convergence Hypothesis,” Environmental Ethics 17 (1995): 135–50. Subsequent references to this paper are given with page numbers inside parentheses.
contextualists such as myself—when emphasizing ecological systems and processes as understood from many local perspectives—would be more willing to sacrifice a species in some situations than a deep ecologist/nonanthropocentrist. This policy divergence in certain situations, situations which he characterizes as only “theoretical” (p. 148), is cited as evidence that the flexibility of contextualism dooms convergence.

I am indebted to Steverson for a concise and mostly accurate summary of my positions on convergence and contextualism, including its changes of emphasis over the years. Further, I agree that deep ecologists should accept the safe minimum standard criterion, according to which there is a strong presumption in favor of saving a threatened resource, provided the social costs are bearable. We also agree that advocates of the safe minimum standard criterion should directly address the question of what costs are bearable, and what costs are prohibitive. Even in these areas of agreement, however, clarification of an important ambiguity in the deep ecologists’ intuitions is necessary. This matter is the subject of next section.

WHAT EXACTLY IS THE INTUITION OF THE DEEP ECOLOGISTS?

Because the deep ecologists’ position is put forward simply as an intuition, we must be very clear what that intuition says; however, Steverson himself
characterizes this intuition in at least two, apparently nonequivalent, forms. When he is not criticizing contextualism for its failure to provide adequate protection for species, Steverson refers to the deep ecologists’ intuition as a belief that “nonhuman nature” has intrinsic value: “One would expect that in order to preserve their belief in the intrinsic value of nonhuman nature, deep ecologists would opt for a decision criterion that minimizes as far as possible the extent to which such value can be allowed to disappear or diminish” (p. 139). At other points in the essay, and especially when he is criticizing contextualism for not being adequately protective of species, he says that the deep ecologists have an “intuition about the inherent value of all species” (p. 137, for example). It is not clear to me whether Steverson believes that these assertions are equivalent (that “nonhuman nature” and “all species” are synonyms), or whether, as one would naturally assume, the first is a general intuition, and the reference to all species is a nonequivalent version of this general intuition, because it is more specific.

This semantic ambiguity is crucial because, if the two phrases are synonyms, then it is impossible for there to be a divergence between policies to protect species and policies to protect nature—by definition, these would be identical goals. If, on the other hand, the general intuition includes elements of nature—such as intact ecosystems—as having intrinsic value, then there could be conflicts between species preservation and ecosystem preservation and restoration. The scientific jury is still out on the importance of species, *qua species*, a subject to which I return below. I hold that deep ecologists, especially if they are inclined to accept the safe minimum standard criterion, should at least for now leave open the question whether species are to be the one and only unit of nature to which intrinsic value applies. At any rate, it seems a mistake to resolve this important question by intuitively supported definition. Indeed, the negotiability of such questions seems the essential outcome of the “unless-costs-are-unbearable” clause in the safe minimum standard criterion. If they did so, they would presumably join contextualists in weighing the scientific and value arguments regarding the actual importance of individual species, both in general and in specific situations.5 On the other hand, if intrinsically valuable

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5 Note that the consideration of this open question could be characterized, among theorists who accept the safe minimum standard criterion as the best available criterion of action, as the question of the “level” (individual, species, ecosystem) at which to apply the safe minimum standard criterion. If the “resource” referred to is “nature,” or “the complex processes of nature,” then species might, in some cases, appear less important than a process. Incidentally, while I recognize that deep ecologists object to use of the term “resource” because it reduces nature to
“nature” is defined as “the current stock of species,” then the criterion has very different implications, emphasizing species at the expense of ecosystem processes in all cases. The problem for Steverson, however, as I show below, is that the sensible, flexible interpretation of the deep ecologists’ intuitions regarding intrinsic value is not sufficient to support the central critical arguments of his paper. Agreement to use the safe minimum standard criterion may not, therefore, resolve the related, but apparently independent question of whether we should in all cases make species protection our first priority, unless it does so arbitrarily, by definition.

This definitional question, whether we should in all cases consider saving nature to be equivalent to saving the totality of species, has consequences for real-world conservation conflicts. It was recently reported in *Science* that the important efforts of the state of Florida to reestablish the pulse regimen of water flow in the Everglades could further endanger the snail kite, a species that survives by preying upon a single species of snails in the Everglades. The question is whether the kite, greatly reduced in numbers, can survive the draining of a holding area that has become their main feeding grounds. An official of the Fish and Wildlife Service believed that the endangered kite populations might be harmed and filed a “jeopardy opinion,” halting planning to restore Everglades hydrology. It is debatable whether the kite case indeed represents a conflict between ecosystem management and species management, and the management dispute has subsequently been resolved, but the fact that such a conflict could arise reveals the importance of the ambiguity in the intuition that Steverson attributes to deep ecologists. If deep ecologists believe that species and only species have intrinsic value, they may be forced to oppose important actions to repair damaged ecosystems, with the paradoxical result that failure to save processes could on a longer scale lead to a loss of even more species.

THE PROBLEM OF CONSERVATION TARGETS

Steverson accepts my argument that, even with the assumptions of Arne Naess and other deep ecologists, it is impossible to apply, straightforwardly in practice, the principle of biospecies egalitarianism at the individual level; thus, he recommends that deep ecologists accept my appeal for a more “holistic” approach and that they join me in accepting the weaker standard of “biospecies impartiality” (p. 138). Biospecies impartiality is applied not at the individual but at the species level. Driven by a recognition that deep ecologists must formulate some specific policy recommendation on species protection, and

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7 Stuart Pimm, personal communication.
convinced by this argument, Steverson concludes that deep ecologists would probably embrace the safe minimum standard criterion as I formulate it. Nevertheless, Steverson’s argument is confusing because the dichotomy of individualism versus holism represents, in the present policy context, only two-thirds of a trichotomy: the issue is not simply whether to protect individuals or species, but whether to protect individuals, species, or ecosystems/processes!

It appears to me that Steverson has not sufficiently distinguished three separable problems. The first problem is that of conservation targets: what should be the object of most conservation efforts? Genes? Populations? Species? Ecosystems? Something else? A second problem, which becomes unavoidable if one endorses the cost-accounting approach that constitutes safe minimum standard reasoning, is the problem of defining prohibitive costs in a nonarbitrary manner: at what point, and based on what types of evidence, might a society conclude that a species, a population, or an ecosystem might be allowed to disappear or decline? Steverson mainly addresses a third, more theoretical problem, the problem of which objects in nature have ultimate value, which he associates with having intrinsic value.

Choosing the correct conservation targets seems to me to be more a matter of good science than of having good intuitions regarding what has intrinsic value. For example, suppose we refrain from restoring the pulse flow of the Everglades to save the kite, only to find that the populations of their prey snail gradually disappear over decades because more and more populations of their host plant are lost during every drought and fail to replace themselves. How should we balance impacts on these different scales? Note that, in some situations, almost anything we might do risks some species either directly or indirectly, and it is not clear how a general intuition that all species have intrinsic value can resolve real management decisions in such situations.

My current views on the importance of the Endangered Species Act—that we should retain the act, continuing to protect all species as long as the costs are bearable—are summarized in a forthcoming publication. I conclude that, given current knowledge, we should retain the Endangered Species Act, but that we should begin to experiment—as some amendments from supporters

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9 On page 146, for example, Steverson describes species as the “objects of ultimate concern.” This characterization, I think, links the general intuition that species have intrinsic value with the question of conservation targets in Steverson’s mind. He believes (falsely, I will argue below) that determining what is of ultimate value in conservation efforts implies clear answers to the practical question of conservation targets.

propose—with pilot programs and experiments that attempt to protect “clusters” or “communities” of species. I have taken it as obvious, based on my reading of biology and ecology, that species are important and that ecosystem processes are important; however, I doubt that the question of which is most important in particular contexts can be resolved with intuitions regarding what objects in nature have intrinsic value. If there are cases in which actions to protect species and actions to protect ecosystems/habitats are in conflict, then I think we face soul-searching investigations that may require the best scientific minds as well as the best philosophical minds to resolve the issues. Nevertheless, I hope that scientific information, such as the importance of a given species to ecological processes, whether the species is indigenous to the system or not, and other empirical questions will at least be relevant to the resolution of these difficult issues. If I were, in some contexts, to advocate protecting ecological processes at the cost of increasing risk for some identified and protected species, it would be on the grounds of scientific understanding of the case, and based on a hypothesis about what policy is likely to be most effective; I do not see how Steverson’s intuitions about intrinsic value help to resolve these practical questions.

SCIENTIFIC UNCERTAINTY AND PROHIBITIVE SOCIAL COSTS

Nor does the general intuition of deep ecologists do much to clarify what we should count as a “prohibitive cost,” whatever our philosophical beliefs. In this section, I explore the inevitably intertwined questions of how to define prohibitive costs and the problem of choosing policies in a context of partial knowledge about consequences of human activities. I treat these two questions together because uncertainty and lack of knowledge are inevitable, often dominant, aspects of every real-world decision situation, and it is in real-world decision situations that some reasonable working definition of bearable versus prohibitive costs of protection efforts will be hammered out.

Concerning Steverson’s views on the problem of prohibitive costs, I am unable to respond to these views directly because I find his views confusing. One would think that, having assumed that deep ecologists know that it is in every case species that are the object of ultimate value, Steverson could address questions of strategy quite straightforwardly—that he would consider no cost to be prohibitive when dealing with the protection of an object of ultimate value. However, his endorsement of the safe minimum standard criterion, which itself makes preservation negotiable according to cost, already indicates that Steverson does not want to use intuitions regarding ultimate value as a direct determinant of policy in all cases. So what do Steverson and the deep ecologists say about the complicated questions of strategy and tactics that face conservation biologists, ecological engineers, and restoration ecologists in situations representing real conflicts?
Assume for the moment that the Everglades case really is one that sets efforts to save the kite at odds with protecting the health of the Everglades ecosystem, and ask: what should be the strategy followed by someone who believes species are of ultimate value? If the kite is of ultimate value, apparently we should set the “prohibitive cost” value of the species very high (hence, Steverson’s implication that the deep ecologists are more steadfast in defense of species). However, to save the kite in this case may be to threaten several other species over the coming decades. At this point it seems unlikely that an intuition of the ultimate value of all species will help resolve the conflict. Nor does an intuition seem likely to resolve the equally interesting case that results if we modify the story to say that no other endangered species exist in the Everglades, thereby pitting a species against an ecosystem simpliciter. The only thing to do in these cases is to step from behind the facade of intuitionism, set aside generalizations about ultimate values, and look at the real-world situation. In the real-world situation, it is often necessary to emphasize ecosystem-level processes over species because of what we know, and because of what we do not know, about the organization of ecological communities, and because of what we know, and do not know, about interspecific relationships. Contextualism advocates addressing the question of conservation targets, especially the question of whether to emphasize species or ecosystem processes, on a case-by-case basis.

In each case, one applies what is known—both generally about species-species and species-ecosystem interactions, and about specific species and local ecosystems—to seek a policy that will protect as much as possible in the particular, local situation.

Because the contextualist approach places so much emphasis on knowledge and its role in determining prohibitive costs, it is now necessary to respond to Steverson’s central argument—that contextualists face a destructive dilemma regarding knowledge. Steverson argues that the contextualist method, which he takes to be a commitment to minimal holism and a belief that the goal should be to protect total diversity at the landscape level,11 “turns the focus of environmental preservation away from individual species and toward ecosystematic processes” (p. 147), and that a contextualist should adopt the “much weaker normative goal of avoiding trends in species losses” (p. 147). Steverson supports this claim by discussing my idea that ecosystems can be viewed from the inside as autopoietic, self-organizing systems, and my associated approach to policy, in which I recommend that we seek to protect the “health” of ecological systems and processes.

In particular, based on his interpretation of contextualism, Steverson correctly attributes to me the view that built-in redundancies in natural systems entail that there are “thresholds” in nature. From this view, he incorrectly infers

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11 This use of the term, landscape, is explained in Bryan G. Norton and Robert E. Ulanowicz, “Scale and Biodiversity Policy, Ambio, 21, no. 3, (June 1992): 244–49.
that I believe “that the loss or decline of an individual species is not, in and of itself, an issue of concern.”\(^\text{12}\) It is essential to recognize that the latter view is derived from the former on the assumption that decision makers would in crucial cases, in which I am willing to dispatch species, have full knowledge of the consequences of the loss of the species in question. But, of course, such knowledge, as Steverson recognizes, involves a counterfactual assumption. In this world, constrained as we are by our ignorance, questions of strategy often outweigh “ultimate values,” simply because we do not know how to protect all the ultimate values that are threatened. Again, it seems that general intuitions of ultimate, or intrinsic, value are not directly relevant to the question of setting the level of prohibitive costs.

However, what of the charge that I as a contextualist am impaled on the horns of a dilemma? According to this dilemma, which again assumes the possibility of complete knowledge of consequences of species losses, I must either (a) admit that there could be sufficient knowledge regarding the consequences of the loss of a species to determine when a species is redundant (in which case I will surely discard any redundant species on the grounds that it will not cause cascading losses) or (b) admit that there could not be sufficient knowledge of the consequences of the loss of a species and its consequences for other species. In the latter case, Steverson argues that I could not possibly manage contextually because the goal of contextual management—to protect ecosystemic health and integrity—requires that “it must have at its disposal a body of knowledge that allows it to engage in diagnostic, curative, and preventive ecological ‘medicine’” (p. 149). Steverson concludes that “without the knowledge and techniques necessary to generate predictive hypotheses about the effects of species loss, contextualism will be an unfeasible approach to policy formation” (p. 150). Notice that, here, the prosecution of Steverson’s dilemma against contextualists assumes that it is species loss, and only species loss, that should concern contextual managers. Notice also that this assumption is simply the embodiment of the less flexible, definitional resolution of the question, discussed above, whether species should always be the dominant priority in nature protection. Below, I show that, without this definitional assumption, the sting of the second horn of Steverson’s dilemma loses its force.

I find the first horn of the dilemma simply irrelevant—it assumes an impossible hypothetical—that we could know with reasonable certainty that a species is redundant. Steverson has not recognized how difficult it is to have “full knowledge” of the extent of vulnerabilities in ecological systems and the likelihood that a given species may support many other species. In fact, the

\(^{12}\) Despite the centrality of this attribution to his criticism, Steverson does not provide a citation; this statement does not state a view I have ever held. It is apparently attributed as an inference from other views I have stated, but an inference he thinks I would make under the counterfactual condition of complete knowledge.
complete knowledge scenario has been proven to be impossible in principle because assessing the contributory value of a species—the value a species has in providing resources or habitat for other species—requires knowing inherently unpredictable events, such as the way an ecosystem will be reconstituted after a severe natural disturbance.\(^\text{13}\)

If we examine the real-world situation, however, recognizing the dominance of uncertainty and ignorance in all to-save-or-not-to-save situations, Steverson’s case is so improbable as to be ludicrous. The case that worries Steverson is a case in which a contextualist might conclude with sufficient certainty that an extinction will cause no cascading impacts on other species or ecological systems and in which it is judged by the contextualist that it is safe to dispatch a species. But such a case could not occur in a situation so permeated with uncertainty as our present situations always are. What is not unlikely is that we might encounter cases in which, despite the usual reasons to prefer species preservation over extinction, conflicting demands and alternative priorities might lead us to reluctantly sacrifice a species despite acknowledgment of a significant risk entailed by the loss. These are the relevant and difficult cases—cases in which, given what (little) we know, other commitments and concerns force us reluctantly to accept the risk, the size of which is unknown, of taking the irreversible step of causing an extinction and hence risking the onset of cascading effects and further losses of species. In these cases, what is important is some sense of the scale of possible negative impacts of a decision, a healthy respect for the dangers of irreversibility, and a willingness to view complex problems on multiple scales and levels.

While Steverson correctly notes that I insist on counting “total diversity” as the target (which includes diversity of habitat as an important element), he does not mention my use of what might be called “Whittaker’s Law,” which is relevant here. R. H. Whittaker argues that, while we cannot claim straightforwardly that diversity begets stability, it does seem unquestionable that diversity begets more diversity, and that losses of diversity tend to cause more losses.\(^\text{14}\) In other words, any loss of species increases the likelihood of further losses, justifying the general presupposition in favor of resource protection that is embodied in the safe minimum standard criterion. Whittaker’s law has not, to my knowledge, been challenged by biologists.\(^\text{15}\) It seems to me that this law, coupled

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\(^\text{14}\) See Norton, *Why Preserve Natural Variety?* chaps. 3 and 4, for discussion and references.

\(^\text{15}\) One must assume, of course, that Whittaker’s law operates within some limits, as was pointed out by an anonymous reviewer of an earlier version of this paper. Since depauperate landscapes provide open territory for the invasion of plants and animals, a cascading crash in species diversity
with a realistic assessment of the scientific uncertainties involved in predicting short and long-term effects of species losses on other species and ecosystem processes, provides an adequate support for the safe minimum standard rule—which is currently applied in United States official policy—that there should be a presumption in favor of saving each and every species, provided that the cost of saving that species is bearable. Scientific uncertainty, some elements of which will be explained later in this section, combined with the presumption created by Whittaker’s Law, seems to me to render irrelevant the case in which a contextualist too quickly dispenses with “redundant” species. The hypothetical case on which it is based simply cannot occur in any world similar to our world.

On the other hand, the second horn of the “dilemma” seems to me to be unproblematic for a contextualist, as can be seen by paying more attention to the multiscalar aspects of biodiversity protection. As I just argued, it is difficult to dispute our ignorance and uncertainty regarding the impact of economic and management policies on particular species, and especially difficult to conclude with confidence that any given species is redundant. Contextualism, however, emphasizes ecosystem-level characteristics—characteristics that are associated with the larger-resolution characteristics of the system itself. Good contextual management may not require knowledge of all interspecific dependencies at the smaller, species level of resolution in order to make, and act effectively in response to, judgments regarding trends in the health or integrity of communities and ecosystems. Suppose that, while we know little about the interspecific interactions of species in a given system, we do know that (a) recent studies have shown a rapid decline in populations of several readily observable and valued species (although no cause for the declines is known); (b) other studies show that the system is suffering rapid invasion by aggressive and opportunistic exotics; (c) toxicological studies show increasing loadings of toxic pollutants in the system; and (d) observable changes are occurring in the means by which energy is transported and distributed through the system. I submit that, in this case, it would make perfectly good sense to hypothesize that the system is under stress, that its ecological integrity is declining, and that its health is threatened, even in the absence of much reliable information regarding which species depend upon other species in that system.

A key aspect of contextualism is the recognition that there are emergent characteristics of ecological systems (characteristics not reducible to characteristics of their component individuals or species). Contextualists may therefore suggest that in some or most situations we will be well advised to aim at
policies perpetuating ecological health, and allow species to perpetuate themselves within a healthy system, rather than concentrating exclusively on species. Since the ecosystem health and integrity movement is premised squarely on setting management goals in terms of ecosystem-level characteristics, it is therefore possible for me to adopt the following position, which qualifies, and then embraces, the second horn of Steverson’s dilemma: while we do not, and probably cannot have, sufficient knowledge to predict the impacts of proposed policies on the survivability of all other species, we may be able to recognize ecosystematic trends, trends that are good indicators of ecosystematic health. If so, then it is possible to manage “contextually” by applying less fine-grained models and criteria, models that measure ecosystem-level characteristics. Indeed, one of the advantages of contextualism is that it reduces the information demands of good management by focusing not so much on the detail of interspecific interactions within the system, but rather on observable system-level characteristics.

Note, also, that this argument does not require one or another answer to the question of what has ultimate value. One might, for example, follow Steverson in believing that protection of species is the ultimate value, but nevertheless believe that, given current levels of knowledge, we will be more successful (in general or in some specific cases) if we protect ecosystems and habitats and let species fend for themselves. Again, it proves to be important to distinguish the practical problem of conservation targets and strategies from intuitions about ultimate value.

It may be useful to summarize briefly some of the scientific results that make me so cautious in applying universal principles to resolve complex real-world cases such as priority conflicts among different species and ecosystems. Some very good scientists and dedicated conservationists believe that we should concentrate on species protection; other experts favor a habitat emphasis. In their arguments for these differing positions, they often mix theoretical, empirical, and practical reasons, but their discussion is mainly strategic, and not based on a priori intuitions. It is an unquestioned advantage of the species-by-species approach that species are observable and countable entities, which goes a long way toward simplifying the statement and pursuit of conservation goals. Nevertheless, other experts place more emphasis on habitat. We know that extensive fragmentation of habitat causes loss of species and that it is the most serious cause of species endangerment and extinction worldwide. We know that some species are “keystones” in their ecosystem, and play important roles in maintaining the structure of the landscape; their loss would set in

16 See Reed Noss and Jeffrey Murphy, “Endangered Species Left Homeless in Sweet Home,” Conservation Biology 9 (1995): 229–31, for a practical plea for good judicial sense, and more emphasis on habitat protection. According to Noss and Murphy, “If habitat destruction is the leading threat to biodiversity, then protecting natural habitats should be the most effective way to conserve biodiversity.”
motion changes that would no doubt stress many other species. The alligator is a keystone species in many southern ecosystems, because its abandoned wallows sustain other wildlife through periodic droughts. Other species, such as the northern spotted owl, can be argued to be “indicator” species—species that would be the most likely to decline as habitat is fragmented. In the latter case, much has been made of the fact that the owl is an indicator of ecological integrity, suggesting that its protection is part of a larger ecosystem plan, which it is.

If these scientific considerations are taken to suggest that we might favor some species more than others, and that we might sacrifice some species to protect ecosystems, but not others, it is also possible to cite contrary evidence. For example, Linda Brubaker, by sampling pollen from ancient lake beds, has shown that interspecific associations which determine community structure are ephemeral over middle (ecological) and long (geological) time scales and that species persist much longer than associations of plants. In addition, there is the interesting (and apparently applicable, if true) hypothesis that species that are redundant in one stable state may be especially important in reestablishing a new equilibrium after a major disturbance or regime shift. These considerations might be thought to recommend a policy that saves species while worrying less about ecosystems. Thus, I doubt that the question “Are species important or are ecosystems important?” has a general answer; nor is there likely to be a general answer to the question of what counts as a prohibitive cost in the protection of a species. The best we can do is to examine the facts of a given situation, factor in what we know about species persistence in general, and make the best decision possible in the particular context at hand. The best that we can do, that is, is to act contextually.

CONVERGENCE: A HYPOTHESIS

I now turn to some clarifications regarding the convergence hypothesis. I would not be surprised if a deep ecologist who persists in the views that (a) all and only species have intrinsic value and that (b) he or she knows this intuitively (without empirical evidence or support) defended policies that in some instances diverge from contextualism. Contextualism seeks relevant scientific and other empirical information to guide policy. Anyone who insists that general policy goals (such as placing higher priority on species than processes in every situation) are intuitive and beyond evidence, would eventually hold divergent policy recommendations from the contextualist who advocates an experimental, open, and adaptive approach to setting management goals. Nevertheless, this situation does not call convergence into question; rather, it provides a perfect example

of what the convergence hypothesis is intended to avoid. Reliance on intuitions and ideology in setting conservation goals narrows the range of policy actions that are examined, and opportunities for unification behind specific policies are lost. The convergence hypothesis is about what would happen if intuitionists and ideologues shifted their attention from abstractions to how we can resolve real and difficult cases.

The convergence hypothesis is a general, empirical hypothesis about policy—it claims that policies designed to protect the biological bequest to future generations will overlap significantly with policies that would follow from a clearly specified and coherent belief that nonhuman nature has intrinsic value. In a stronger version of the hypothesis, defended in Toward Unity among Environmentalists, I have claimed that, given the present state of knowledge and concerns for other species, policies that score high on the safe minimum standard criterion, applied from an anthropocentric, contextualist perspective, will do as much good in protecting the moral commitment of deep ecologists as any other possible policy that could be undertaken given what we know now.

Again, it is taken as a given that the current situation includes both uncertainty and ignorance, and that management is based on a sincere interest in saving important aspects of nature. One of the constraints on achieving “rational” policy, from any perspective, is lack of knowledge. The point is to move toward better policy given that we act in ignorance and uncertainty, not to intuit what we would do in imaginary worlds, in which uncertainty and ignorance are somehow conquered.

I do not know if the convergence hypothesis is false in Steverson’s imaginary, probably impossible, world. I only know that it is false in the real world and that it is false in any world that resembles the real world in most ways relevant to policy choices. The convergence hypothesis is a contingent truth; a very general empirical hypothesis that shapes solutions sought by adaptive managers in particular situations. It is supported by facts, both directly and indirectly; it could be falsified, but so far it has not been.

Notice that it would be remarkable if it were to turn out that there is no convergence between what is good for humans and for other species. Is it at all surprising to claim that human activities that threaten other species are likely to pose threats to human beings? The evolutionary kinship of all the species has been a theme in biology since Darwin. Leopold, Carson, and many other environmentalists all operate on the expectation that caring in detail for human well-being broadly understood usually converges with the well-being of other species.18 We share our evolutionary history with other species, especially the ones that are closely related to us, and it is hardly surprising that we share many of their vulnerabilities.

The convergence hypothesis implies, as noted above, important and falsifi-

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18 Norton, Toward Unity, p. 83.
able predictions. For example, amphibians around the world are disappearing at an alarming rate. Suppose we learn the cause(s) of this demise of amphibians with some confidence. The convergence hypothesis predicts that, once that complex of causal processes is understood, those processes that threaten amphibians are more likely than random to eventually have negative impacts on humans. If in ten years we understand that a complex of processes is causing amphibians to disappear, the convergence hypothesis predicts that more of these processes will be harmful to humans than will be benign.

The convergence hypothesis does not, of course, claim that the interests of humans and interests of other species never diverge, but only that they usually converge. Hence, the presumption—if our knowledge base regarding a given species and its interactions with other species is weak, as it usually is, then we assume that the species should be saved. The burden is shifted under the safe minimum standard criterion to anyone who argues that the costs of saving any species are unbearable—and this shift brings us back to the difficult question: what counts as “prohibitive social costs” of saving a species? How are we to set conservation priorities? I challenge Steverson, the deep ecologists, and everyone else in environmental ethics to address these real-world problems on a local, contextual basis and join the search for adaptive solutions and sustainable human institutions, cultures, and life styles in each local area. If we do not accomplish that task, nature has no chance; if we do, however, I doubt we will find the path by general intuitions from beyond experience, but rather from experience, respect for diversity, and social learning through participation in the decentralization of institutions, and the reversal of landscape homogenization. What is needed are many local sciences of the integrity of many places, of the particularity of their species, of their natural history, etc. In the process of many experiments, given a management approach guided by the overall goal of minimizing human impacts on important processes and to save species whenever possible, we may learn how important species really are, and what are the costs of losing a species as compared with losing an important process. By pursuing convergent goals and experimenting in areas where local viewpoints differ, we can learn which strategies to choose in various situations and therefore to improve our ability to minimize anthropogenic impacts at all levels and scales. As Dewey argued, this sort of social learning is more likely to occur in an open and democratic process, in which science works for the public good. But I doubt that intuitive pronouncements, asserted to be known without empirical evidence, will have a significant role in this process.

19 See Kai Lee, Compass and Gyroscope (Covelo, Calif.: Island Press, 1993) for a useful analysis of the political context of social learning in pursuit of environmental goals. Also see Bryan G. Norton, “Reduction or Integration: Two Approaches to Environmental Values,” in Environmental Pragmatism, ed. Andrew Light and Eric Katz (London: Routley Publishers, 1996), for a proposal for a pragmatist approach to environmental policy and environmental ethics.