The Handbook of Conservation & Sustainability Ethics

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Conservation is the maintenance and restoration of population viability and ecosystem health. Sustainability is meeting human needs in a socially-just manner without inappropriately compromising conservation. While conservation and sustainability involve distinct knowledge and concerns, they are similar for being fundamentally concerned for our relationship with nature. From this similarity, the ethical dimensions of conservation and sustainability are essentially the same. Hereafter, we use conservation ethics to refer to the ethical dimension of both conservation and sustainability.

1. WHAT IS ETHICS?

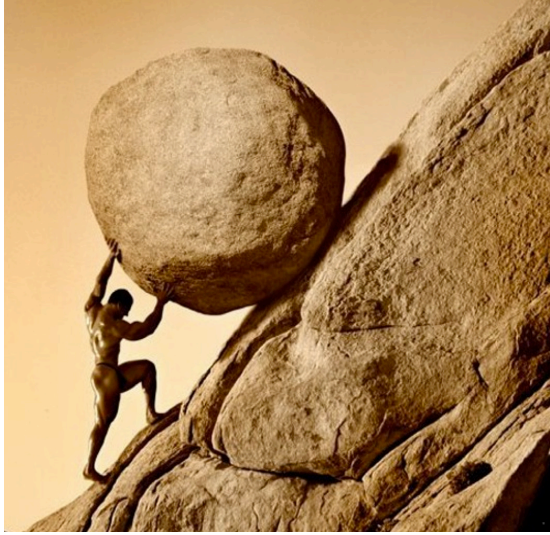
This handbook focuses on scholarly ethics, which aims to understand how we ought to relate to others around us and involves a formal method, which is the subject of this document. However, ethics is not always understood this way. We begin by describing some misconceptions about the nature of ethics. Much like science, conservation ethics involves both applied and basic elements, and we will discuss each. However, some valuable perspective can be gained by simply highlighting a few important misconceptions about the nature of scholarly ethics.

MISCONCEPTION 1 - Ethics is not telling other people what to do, or compelling others to behave as you might like them to behave. This may be the objective of parenting, religious leadership, or certain forms of political action, but not ethics.

ANTIDOTE - Ethics is coming to understand how we should behave toward and relate to others around us. That understanding can be gained through the fundamentals described throughout the document.

MISCONCEPTION 2 - Ethical problems are not worthy of our attention because they are intractable. Confronted with a truly controversial ethical challenge, it is tempting to think, "with little or no hope of resolution, we'd better spend our effort dealing with problems we can solve."

ANTIDOTE - Ethical development is slow and difficult, but worthwhile. Important examples of ethical development include the movements for civil rights and gender equality. The Animal Welfare Act and Endangered Species Act of 1973 of the United States are also examples of important ethical development. They are premised on the idea that at least some non-human individuals and non-human species are intrinsically valuable.

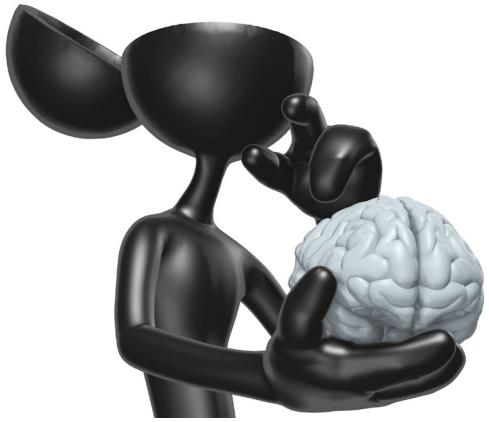


Ethical development is slow in much the same way that science develops slowly. For example, scientists have been trying to answer the question, "how do predators affect the ecological communities in which they live?," for about a century. While many basic aspect of that question remain unanswered, there is no shortage of enthusiasm among scientists for devoting tremendous effort and resources to answering questions like this. Ethics should be treated similarly.

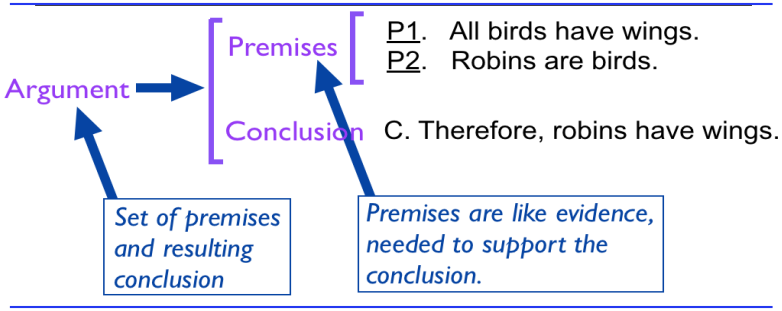
MISCONCEPTION 3 - Ethical aspects of conservation and sustainability are well accounted for by the social sciences, which aim to understand what people believe, how they behave, and why. The social sciences represent an adequate treatment of ethical concerns.

ANTIDOTE - Both social science and scholarly ethics share deep similarities for being focused on human behavior and relationships. At the same time, these fields of inquiry couldn't be more different. One is rooted in the sciences, while the other is in the humanities. One is concerned with empirical descriptions of how the world is, and the other with normative prescriptions of how the world should be. Ethics aims, not so much to understand how we behave, but to develop knowledge for understanding how we ought to behave. While ethical prescriptions are constrained by how the world is, they are not determined by scientific descriptions of the world alone. For example, while lying is a common behavior that can be explained, that does not make it right - just ask your mother.

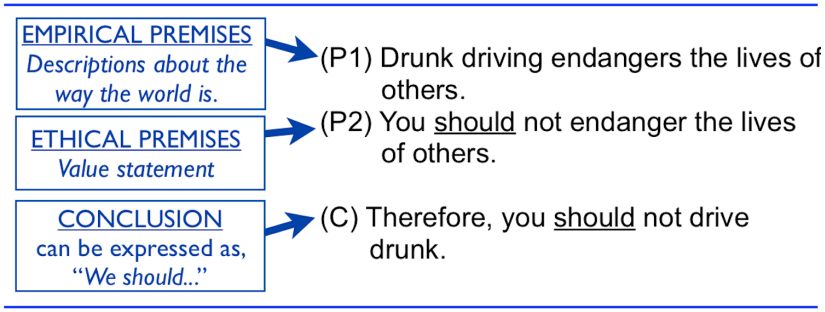
MISCONCEPTION 4 - The appropriateness of any particular ethical attitude is largely subjective, like the statement "chocolate cake is good." This statement about cake is certainly a subjective statement. It may be true for you and false for me. No evidence or consideration is required except for each of us to say so. However, the ethical implications for "Chocolate is good" are not especially important (at least under most circumstances). By contrast, the assessment of claims with an important ethical dimension, such as "cheating is good," require objective and rational scrutiny.



ANTIDOTE - Ethics has far more to do with logic than is typically appreciated. This is so because scholarly ethics is largely concerned with using argument analysis to formally assess propositions that can be expressed as "We ought to..." Here, an argument is simply a collection of premises, which serves as evidence in support of some conclusion. To illustrate, here is a very simple argument:



An ethical argument is a special kind of argument, where the conclusion can be expressed as "We ought to..." For example:



A critical, but often overlooked, point is that an ethical argument must have at least one ethical premise.

Conservation is environmental ethics in action

Conservation and sustainability are largely concerned with the analysis of propositions like, "We should use these water resources in this way, because..." and, "We should conserve this wildlife population, in this way, because..." Consequently, conservation and sustainability are – recognize it or not, like it or not – environmental ethics in action. Failure to recognize this connection risks mishandling the ethical aspects of conservation and sustainability.

2. APPLIED CONSERVATION ETHICS

Applied conservation ethics is essentially the application of argument analysis to better understand particular problems in environmental ethics. Argument analysis largely involves asking three questions about an argument. The first two questions are:

> **Question 1:** *Are all of the premises that would be necessary to arrive at the conclusion present in the argument?*
>
> **Question 2:** *Are all of the premises true or appropriate?*

The power of argument analysis is, if the answers to these two questions (and the third question, below) is yes, then the argument's conclusion is appropriate. That appropriateness is backed up by the

force of logic that has not been disputed since it was first developed more than two thousand years ago.

Let's consider each of these questions in turn. First, a simple example, illustrating Question #2, an argument with a mistaken premise:

Are all of the premises true or appropriate?

P1) All U.S. presidents live in the White House.

Mistaken premise → P2) Lady Gaga is the president of the U.S.

unsupported conclusion → C) Therefore, Lady Gaga lives in the White House.

Now a simple example, illustrating Question #1, an argument that is missing a premise that would be needed to support the conclusion:

Is there a missing premise that would be necessary to arrive at the conclusion?

P1. Prostitution promotes economic development.

P2. We should promote economic development.

C. We should promote prostitution.

If you are sympathetic to the conclusion of this argument or the universality of premise (P2), you might not realize this argument is missing a third premise (i.e., (P3) We should do anything and everything that promotes economic development). Missing premises routinely reveal critical flaws in an argument, and they can often be difficult to identify precisely.

These two questions are not the entirety of argument analysis. There is a third question to ask of any argument:

> **Question 3:** *Does the argument actually address the concern that originally gave rise to the argument's development?*

This question is important because while we often give reasons for why we believe we ought to behave in a certain way, we do not typically express those reasons with the formality of premises and conclusions. Consequently, analysts need to be on guard for missing the intended point of a reason when translating it into an argument. For example, a person might say at a town meeting or in an editorial, "Nickel is a valuable resource. We should use nickel-sulfide mining techniques to extract nickel in Michigan, because the technology to do so is safer now than it ever has been." Let's refer to that expression as a reason. The analyst would translate that reason into an argument:

P1. Nickel is valuable.
P2. The modern methods for mining nickel are safer than previous methods.
C1. Therefore, we should mine nickel.

When the people who expressed the original reason see the argument expressed in its formality, they might say, "No, no, that doesn't represent the essence of my reasoning." If so, the analyst needs to ask more questions to discover how to better capture the intended reasoning. Denying on every occasion that an argument adequately captures the intended reasoning can reveal a person who is not sincere about reasoning at all. Such revelation is valuable.

An Example

The previous examples are useful for illustrating some fundamental principles. Those examples do not, however, illustrate the complexities and difficulties routinely associated with conservation ethics. Let's turn our attention to an example illustrating some of these challenges. Warning: If you breeze through this example you will miss critical principles in conservation ethics; proceed slowly and with caution.

Suppose someone offers this reasoning: "We should hunt wolves because they kill deer that humans hunt." The first step in developing the argument for this reasoning is to write the conclusion and any premises that seem to rise straight from the text of the reasoning:

(P1) Wolves kill deer.
(P2) Humans have an interest to hunt deer.
(C) We should hunt wolves.

Now ask Question #1, Are all of the premises that would be necessary to arrive at the conclusion present in the argument? Upon inspection, you should observe that this is an ethical argument without any ethical premises. That is, the conclusion includes a "should," but none of the

premises do. Provisionally revise the argument by adding premise 3:

(P3) We should kill things that frustrate our interests.

At this very point a critic might object that the argument is beginning to misrepresent the intended reasoning. After some discussion and reflection you might discover that the intended reasoning is better represented by replacing premise 3 with these two premises:

(P3) You shouldn't kill something without an adequate reason.
(P4) Increasing hunters' success rate is an adequate reason to kill wolves.

It is not uncommon for an argument to require a pair of ethical premises, one stating a general principle, like (P3), and one specifying how that general principle applies to the particular circumstances of the argument, like (P4). As an analyst, you might intuitively object to (P4); believing it is not true. Such objections are inappropriate at this stage of argument analysis. The only task, at this stage of argument analysis, is to discover all the premises that would have to be true, if the conclusion is to be supported.

If all these changes and revisions are becoming difficult to follow,

pages 10 and 11 track the major developments of this argument.

Now, re-inspect (P1) through (P4). You might realize that the precise wording of (P4) creates the need for an additional premise. This new premise is best placed after (P2). From a strict logical perspective, the order of premises typically does not matter. However, the order of premises can affect how easily understood the argument will be. With the new premise, and the subsequent premises re-numbered, we have:

(P1) Wolves kill deer.
(P2) Humans have an interest to hunt deer.
(P3) Reducing wolf abundance will increase hunters' success rates.
(P4) You shouldn't kill something without an adequate reason.
(P5) Increasing hunters' success rates is an adequate reason to kill wolves.
(C) We should hunt wolves.

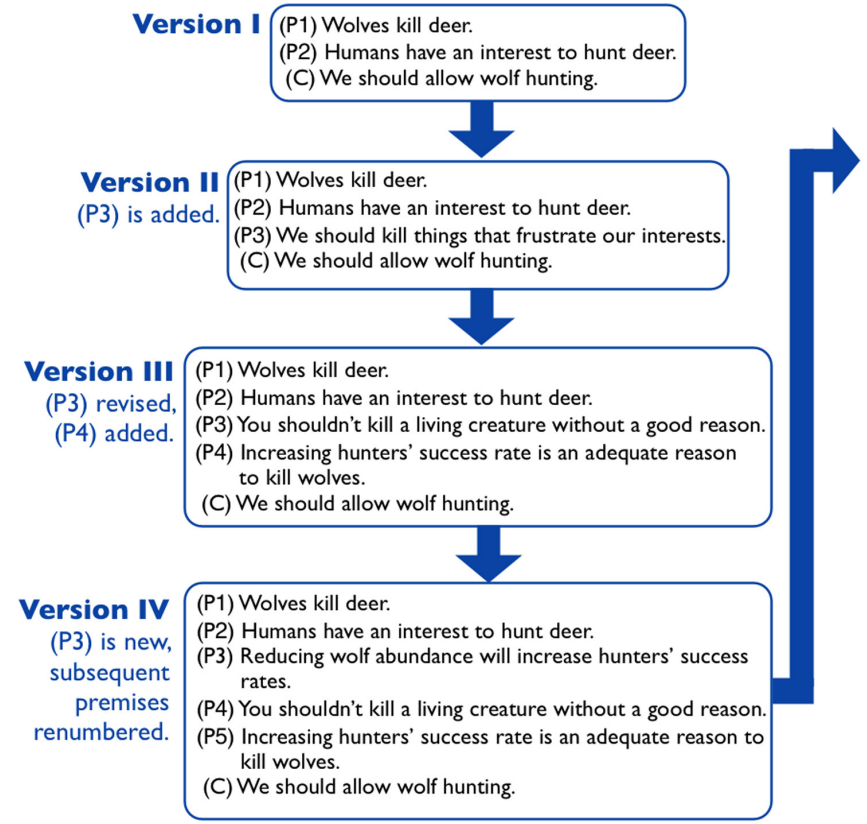
Re-inspect the revised argument again. From an ecological perspective, (P3) represents the synthesis of several ecological processes. If you anticipate that evaluating the truth of (P3) will be challenging, and would like to make that task easier, there is likely value in replacing (P3) with three simpler premises:

(P3a) Hunting wolves will reduce wolf abundance.
(P3b) Reducing wolf abundance will increase deer abundance.
(P3c) Increasing deer abundance will increase hunters' success rates.

Again, the need for decomposing (P3) into several simpler premises may depend on the audience to whom this argument is addressed. If the audience you have in mind can easily evaluate the truth of (P3), there may be no need to decompose it.

Re-inspect the revised argument again. The original premises, (P1) and (P2), likely require attention. They certainly served their purpose by providing a toehold during the early stages of constructing this argument. But now, those premises

DEVELOPMENT OF AN ARGUMENT

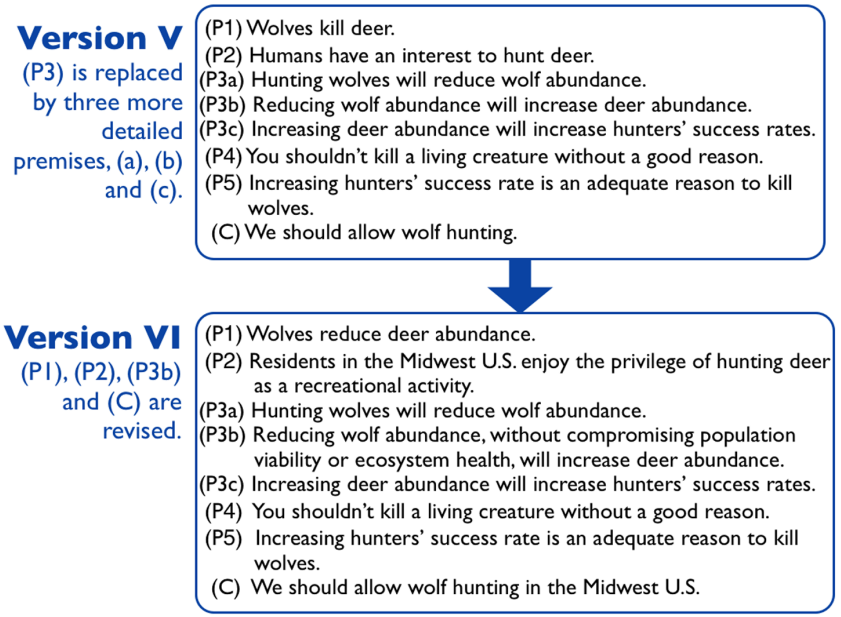


seem inadequate. They suggest important pieces of evidence that would have to be true for the conclusion to be appropriate. However, adequately accounting for that evidence requires these revisions to (P1) and (P2):

(P1) Wolves reduce deer abundance.
(P2) Many residents in the Midwest U.S. enjoy the privilege of hunting deer as a recreational activity.

The revisions to (P1) are important for better connecting it to the wording of premise (P3b). Revisions to (P2) are critical for three reasons. First, (P2) now explicitly provides critical context that will be necessary when it comes time to evaluate the appropriateness of (P5). Specifically, the evaluation of (P5) (when we get to that step) will involve assessing what counts as a good reason for killing a wolf; and (P2) now provides critical context for what that reason would be.

DEVELOPMENT OF AN ARGUMENT



Second, revisions to (P2) provide an important opportunity for a critic to object that the premise misrepresents the true value of deer hunting in the Midwest U.S. A critic might believe that economic and cultural values of deer hunting are also important values. There are two ways to handle this criticism, and knowing which is best requires some careful judgment. One approach is to revise (P2) to also acknowledge these values. The other approach is to recognize that accounting for these values is important, but adding them to this argument will make the argument difficult to analyze. In this case, these additional values can be handled by constructing a new and completely separate argument that gives these values due attention. The details of this second approach are discussed later in "Cataloging the Reasons." For the sake of illustration, let's suppose that these additional values of hunting do not need to be addressed at this moment.

Third, revisions to (P2) significantly restrict the conditions to which this argument applies. This argument no longer applies to all cases of wolf hunting; it now only applies to the Midwest U.S. Consequently, the conclusion requires revision:

(C) We should allow wolf hunting in the Midwest U.S.

An important challenge is to construct an argument that is as broad as possible in its scope, but not broader than is appropriate. The world is full of diverse circumstances that can make an action ethical in some cases, but not in others.

Is the argument complete now? Probably not. To see what's missing requires a keen eye. In particular, in the Midwest U.S., state and federal laws preclude hunting wolves to the point of becoming endangered species. That is, hunting is precluded by law if it compromises wolf population viability. Moreover, many believe that hunting would be wrong if it reduced wolf abundance to the point of preventing them from performing the ecological functions that contribute to ecosystem health, such as, perhaps, regulating deer abundance. Acknowledging these concerns requires revising (P3b) to state:

(P3b) Reducing wolf abundance in a manner that does not compromise wolf viability or ecosystem health will increase deer abundance.

This revision raises three important issues. First, this revision will play a role in the next step of argument analysis when we assess Question (2), dealing with the truth of each premise. That is, while it is likely true that deer abundance would increase with drastic reductions in

wolf abundance; it is less obviously true that deer abundance would increase with reductions in wolf abundance that still preserved wolves' population viability and ecosystem functioning.

The second issue is to understand what counts as population viability and ecosystem health. We'll discuss this issue further below. But for now we can simply recognize that the argument might have

to include premises that account for this question, especially if the audience for whom this argument is intended includes a diversity of views on what counts as population viability or ecosystem health.

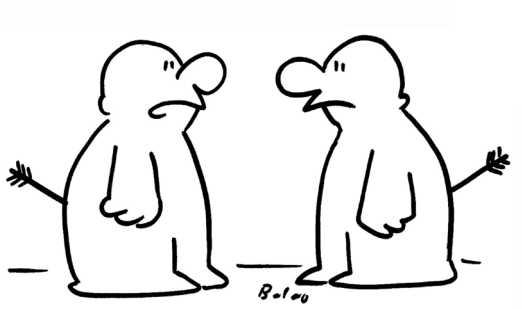
The third issue is concerned with understanding how laws and policies are related to ethical arguments. The details of the relationship are complex. While we all might hope that laws and policy reflect appropriate ethical perspectives, this is certainly not always the case (e.g., segregation laws). The analyst has two basic options. One is to presume that existing laws and policies are either immutable or adequate. The other option is to develop an argument highlighting how it may be that existing laws and policies are somehow inadequate and in need of revision. Careful judgment is required to know how best to proceed.

Let us suppose at this point that we are reasonably satisfied the argument is not missing any premises. Before proceeding to the next step of argument analysis, here are some tips for minimizing the risk of missing a premise:

1) Become very knowledgeable about the issue to which the argument pertains.
2) Empathize with people who would tend to agree with the argument's conclusion and with those who would oppose it. Empathize means understanding another's perspective, not necessarily agreeing with it. For example, lack of empathy can cause one to underestimate the value of recreational hunting as it is expressed in (P2), or underestimate what counts as a good reason for killing another living creature.
3) Discuss the argument with people who are likely to agree with it and others who would oppose it. Ask these people if they can discover any missing premises.

Argument analysis seems to go easily if you do it by yourself, without having to accommodate the concerns of others. However, with argument analysis done by yourself it is much easier to miss a critical premise.

There is no way to be 100% sure that all the necessary premises are present. In this way an argument is like a scientific hypothesis. There is always the possibility that a new



"I know exactly how you feel."

consideration, a fresh perspective, will reveal the need for an additional premise. If that missing premise happens to be false, then the argument's conclusion will fail. Arguments, like scientific hypotheses, are always provisional.

Nevertheless, at some point, you will be reasonably satisfied that the argument is adequately complete. You are, provisionally, done addressing Question 1.

Argument Tables

The next stage of argument analysis is to address Question #2, "Are all of the premises true or appropriate?" We distinguish "truth" from "appropriateness" because it seems natural to consider scientific premises as being true or false, and ethical premises as being appropriate or inappropriate. The first step in developing an argument table is relatively easy. That is, to list, in the right most column of a table, each premise in the argument (see top of next page). To the left is a column indicating the kind of expertise that would be required to pass judgment on the truth status of each premise. If you do not have the expertise associated with that premise, then you very likely may not be qualified to pass judgment on that premise. Lack of humility commonly prevents a person from recognizing the limits of their knowledge.

How does one judge the appropriateness of the ethical premises? This is a difficult question. It is not quite right to simply take a poll of stakeholders and ask them. Ethics is not democracy – there are many examples of entire communities behaving unethically. However, ethics is not a benign rule by philosopher-kings, where a few ethicists get to say what is right. The ideal circumstance is to reliably discover whether an ethical premise is appropriate or not, and to convince stakeholders of that case. (Later we describe how "secondary arguments" can be used to assess the appropriateness of an ethical argument [page 17]. In Section 5, we further discuss the assessment of ethical premises.)

The next step in completing the table is to assess the truth and appropriateness of each premise. This column is not simply a matter of recording what you, as the analyst, believe to be true about each premise. Your responsibility as an analyst is due diligence in learning what appropriate experts would say about each premise. The *True or Appropriate?* column is critical because for the conclusion to be well supported by the argument, every entry in the *True or Appropriate?* column must be "Yes," with no further qualification or condition. In other words, the conclusion is a reliable as the weakest premise. You can see from this argument table that the conclusion is not at all well supported. There is quite a bit of doubt about all but two of the premises.

At this point we learn something interesting about ethical decision-making. You might be tempted to think that the ethical premises of an

Controversial?	True or appropriate?	KIND:	PREMISES:
probably	sometimes	ecological	(P1) Wolves reduce prey abundance.
no	yes	sociological	(P2) Residents in the Midwest U.S. enjoy the privilege of hunting deer as a recreational activity.
maybe	yes, if hunted aggressively	ecological	(P3a) Hunting wolves will reduce wolf abundance.
yes	not at all clear	ecological (with important normative component)	(P3b) Reducing wolf abundance, without compromising population viability or ecosystem health, will increase deer abundance.
probably	maybe	ecological	(P3c) Increasing deer abundance will increase hunters' success rates.
no	yes	ethical	(P4) Shouldn't kill a living creature without an adequate reason.
yes	requires further analysis	ethical	(P5) Increasing hunters' success is an adequate reason to kill wolves.
			CONCLUSION: We should allow wolf hunting.

argument are the ones that would cause the greatest hang-ups. In this case, the ecological premises may well be more troublesome than the ethical premises.

The final step in completing the argument table is to assess the controversiality of each premise. That is, assess whether or how each premise is expected to be controversial among the relevant stakeholders. This column is important because you might have a situation where each premise is certainly true or appropriate, but where several of the premises might also be controversial. For example, consider this premise: Anthropogenic climate change is causing arctic ice to melt. This premise is certainly true to relevant experts. However, the premise is also controversial among broader groups of non-experts. If the *True or Appropriate?* column includes only a column of yes's, and the *Controversial*? also includes some yes's, then you do not have an ethical problem, but you may have a public relations problems. Either would be an important problem, but each is solved in a different manner. The most important point is to understand the difference between these two columns.

From this example, you might be tempted to think that your mission is accomplished, and we should not allow wolves to be hunted in the Midwest U.S. Not so quick. The failure of an argument does not necessarily mean the conclusion is wrong. It just means that the reason offered does not support the conclusion. There might be some other reason out there that would support the conclusion. Again, ethics has something important in common with science: failure to reject a null

hypothesis may not be a strong indication the hypothesis is wrong.

Uncertain premises and secondary arguments

The argument table discussed in the previous section represents a primary argument. If the premises of a primary argument are all true or appropriate (and if no premises are missing), then the conclusion is true or appropriate. If one or more premises are untrue or inappropriate, then the conclusion is inappropriate. What if the primary argument contains one or more premises whose truth or appropriateness is uncertain? Then the conclusion's appropriateness is also uncertain. Two strategies sometimes help clarify uncertainty premises.

First, the influence of an uncertain premise on a conclusion can sometimes be better understood by re-wording the premise. For example, premises (P1) and (P3) from the argument table on page 15 can be re-worded as "Wolves sometimes reduce prey abundance," "Hunting wolves at very high rates of harvest typically reduces wolf abundance," and so on. With these revisions, (P1) and (P3) become "certainly true." This certainty comes at a cost however. Now (P5) must be re-worded to something like, "The possibility of increasing hunters' success is an adequate reason to kill wolves." With diligent application of available science it may be possible to express (P5) in more precise terms, allowing "The possibility of" to be replaced with "A very good chance," "A remote possibility," or even something very precise like "A 75% chance of." In any event, lending certainty to (P1) and (P3) tends to cast greater doubt on the appropriateness of (P5).

In this example, isolating uncertainty within the scientific premises suggests more scientific knowledge would contribute to a more definitive assessment. Isolating uncertainty in the ethical premise, (P5), as expressed in the previous paragraph emphasizes the ethical dimension of the problem. Insight can emerge from transferring the uncertainty of an argument from one set of premises to another.

Uncertainty also raises questions about the role of the precautionary principle in argument analysis. When applicable, it should be incorporated as a premise. Doing so entails more than calling on the precautionary principle to inevitably support the conclusion you may have prejudged to be appropriate. The challenge is to precisely express the precautionary principle and then discover how it influences the argument. Doing this effectively requires understanding the precautionary principle's various formulations. For example, one expression of the precautionary principle is, roughly, "one should not take actions that risk incurring irreparable harm." In the wolf hunting example, some stakeholders might consider an argument suggesting: (i) any harm caused by overharvesting would be readily repaired by the cessation of harvesting, and (ii) overriding the privilege to hunt wolves is an irreparable harm. More generally, the challenge presented by the precautionary principle is disagreement about what counts as 'risk' and what counts as 'irreparable harm.' These issues, however, can be sorted out with carefully constructed arguments.

A second technique for dealing with primary arguments that contain uncertain premises is to construct a secondary argument. In a secondary argument, the uncertain premise is treated as the conclusion to some undeveloped argument, and the task is to develop and assess the argument that would support or refute that premise. The diagram below illustrates.

Partially completed argument tables showing the relationship between the main (or primary) argument and secondary arguments. When the appropriateness of a premise is uncertain, that premise can be evaluated by treating it as the conclusion to an argument that needs to be developed.

PRIMARY ARGUMENT

APPROPRIATENESS	CONTROVERSIALITY	PREMISES
		P1.
		P2.
unsure		P3. Mussels are sentient creatures.
		P4.
		P5.
maybe		P6. A sentient creature should not be killed for the purpose of increasing a fishery.
		C1.

SECONDARY ARGUMENT #1

APPROPRIATENESS	CONTROVERSIALITY	PREMISES
		P1.
		P2.
		P3.
		P4.
		C(P3). Mussels are sentient creatures.

SECONDARY ARGUMENT #2

APPROPRIATENESS	CONTROVERSIALITY	PREMISES
		P1.
		P2.
		P3.
		P4.
		C(P6). A sentient creature should not be killed for the purpose of increasing a fishery.

Cataloging the Reasons

Providing the best possible assessment for an ethical conclusion requires one more step. Generally this is the first step of argument analysis, but it makes more sense to describe this first step after describing the three questions that represent the core of argument analysis. This first step is motivated by recognizing that most issues in conservation are associated with a variety of reasons for and against a proposed action.

Each reason is, generally, associated with its own argument. The first step of argument analysis is to create a list or catalogue of the reasons that you have heard people assert as reasons for or against some particular conservation action. For example:

CATALOGUE OF REASONS

FOR hunting wolves	**AGAINST** hunting wolves
kill ungulates that humans hunt	wolves don't kill all that many ungulates
threat to livestock	wolf hunting would compromise ecosystem health
dangerous to humans	wolves are sentient creatures
wolf hunting is part of our heritage	
promote appreciation and conservation of wolves	

The critical point is that each reason (each cell in the table above) is likely associated with a separate argument. A thorough assessment of an issue requires performing argument analysis for each of the reasons. Because the task is time consuming, it is wise to begin with the reason you think will be most interesting. A reason might be interesting because it seems justified, but is also underappreciated by most stakeholders. A reason might also be interesting because it is persuasive to many, but you suspect it might not be all that justifiable.

3. IMPLEMENTING CONSERVATION ETHICS

Venues and products

Argument analysis can be conducted by one's self, with a collaborator, or in small working groups. In any case, the development of robust arguments requires extensive knowledge of the issue, empathy for stakeholders with disparate concerns, and intellectual honesty. The most useful result of argument analysis might be a white paper or manuscript. Following a brief introduction to the topic, that document could be organized as follows:

1. Catalogue of reasons – This section lists and briefly describes each reason for and against the issue of concern. In some cases it may be useful to also describe how the catalogue was developed (e.g., formal or informal survey of stakeholders, experts, print media, internet, etc.).
2. Argument analyses – This section contains an argument table (see p. 15) for each argument and an accompanying narrative that describes each table. That narrative can explain, for example, how various premises were assessed in terms of evaluating their truth, appropriateness, and controversiality. If the document is being developed by a group of people with apparently irreconcilable views on the appropriateness of an argument or one of its premises, this is the place within the paper to explain those various views and perhaps communicate competing arguments.
3. Synthesis – This section describes insight gained by having analyzed a set of arguments. It may describe a definitive result about what we ought to do, if such a result was obtained. It may describe whether certain management options were excluded as being inappropriate. This section could also highlight the need for more work to better resolve the appropriateness of specific premises. It may also describe what progress was made with respect to developing new common ground among disparate groups of stakeholders.

An example of a document that roughly follows this outline is Nelson and Vucetich (2009) (See endnote 1). The ultimate quality and value of such a document, like any other, is determined in large part by its reception by peers and the intended audience. The document becomes a resource – like other technical papers – upon which leaders can base their decisions.

Challenges

Working as an ethicist is like being a "disinterested" scientist or an "impartial" judge. Scientists are deeply interested in executing the rules of science, but open to rejecting or supporting any hypothesis. A judge is deeply partial to the principles of justice, but impartial to the outcome of any particular case. The commitment to ethics

is a commitment to the principles of argument analysis and impartiality about the outcome to which it leads. Put succinctly, conservation ethics requires intellectual honesty. Sadly, intellectual honesty, especially over matters of ethics, is a rare trait in today's society, and that rarity is a serious obstacle to ethical discourse.

Ethical discourse also requires empathy for those with whom you disagree. Empathy is essential for developing arguments that are robust to perspectives that are disparate but also legitimate. Consider an example:

(P1) Spotted owls are an endangered species.
(P2) Barred owls are a common species that threaten the conservation of spotted owls.
(P3) We should conserve endangered species.
(C) We should kill barred owls (endnote 2).

Such an argument might be advanced by someone focused on the legitimate concern for the value of conservation. However, someone focused on the legitimate concern for the value of individual living organisms might be offended and advance a competing argument that would be equally offensive to the conservation-focused person:

(P1') Barred owls and spotted owls are individual, living creatures with intrinsic value.
(P2') Humans shouldn't kill living creatures with intrinsic value.
(C) We should not kill barred owls.

Lack of empathy causes many people to focus value on one legitimate concern and, in doing so, deny all value to other legitimate concerns. This inability to handle more than one value at a time is a surprisingly common challenge in ethical discourse (endnote 3). In this example, an important step toward reconciling the disparity can be achieved by adding these premises to the first argument (endnote 4):

(P4) Because they have intrinsic value, living creatures should not be killed without good reason.
(P5) Conserving spotted owls is a good reason to kill barred owls.

The arguments (P1) through (P5) still needs to be evaluated with an argument table (p. 15). In doing so, one may discover that the conclusion is "not obviously true" because (P5) is "not obviously true." Assessing that prospect may require a secondary argument treating (P5) as the conclusion to an argument that requires its own analysis (see p. 17). The genuine advance represented by premises (P4) and (P5) is to shift the

efforts of two stakeholders from each denying what is legitimately valued by the other to explicitly recognize the legitimacy of each value. That recognition leads to the need to explain why one value should be overridden by the other. That explanation would be the basis for a secondary argument whose conclusion is either (P5) or a denial of (P5). The struggle to discover such an explanation represents hope for developing a perspective that transcends what otherwise appears to be an either/or situation.

Judging or reconciling competing values requires considerable empathy. Sadly, empathy is an undervalued and under-practiced skill in our society. This is a serious obstacle to ethical discourse.

The severe limitation for the two key prerequisites for ethical discourse – empathy and intellectual honesty – is not reason to dismiss ethical discourse. It is occasion to be mindful of the limitation, to promote and practice (yourself) those skills on every occasion, to recognize your own shortcomings in these areas, and to be prepared for slow and arduous progress – just like any other worthwhile endeavor.

Stakeholder involvement

A substantial component of conservation ethics is a scholarly endeavor, as difficult and technical as any other scholarly endeavor. Expecting any stakeholder to make significant contributions to argument analysis is like expecting any stakeholder to contribute significantly to the development of new scientific knowledge. Both expectations are unreasonable.

Moreover, it is not necessary, in a mechanical sense, for all stakeholders be directly involved with the development and analysis of arguments. It is only necessary that every stakeholder's position be

well-represented by argument analysis. A well-informed, practiced, and empathic analyst can represent a stakeholder's position, in many cases, better than the stakeholder. In such cases, representation *in absentia* may be preferable.

However, ethical attitudes and behaviors are not effectively manifested by mandate from an academic office or government post. People tend not to embrace attitudes and behaviors they have not, in some way on their own, come to believe. For this reason, there is value in developing venues for ethical discourse that involve relatively broad stakeholder involvement.

Ethical discourse for broader stakeholder involvement might take the form of a series of meetings where:

1) The basic principles of argument analysis are explained.

2) Participants work for a short time in groups of three or four on arguments related to the issue of concern. The goal is to appreciate the difficulty of argument analysis – the difficulty of knowing how we should act in the face of complicated conservation problems.

3) Dialogue is held about any formal argument analysis that may have already been conducted on the issue of concern. Topics for dialogue may include whether all the reasons have been properly identified, whether any arguments are missing premises, whether the premises had been adequately evaluated, and overall lessons to draw from argument analysis.

While carefully crafted goals and the resources (e.g., leadership and patience for the time required to accomplish those goals) are necessary for success, ethical discourse also requires properly oriented participants. Most engaged stakeholders are familiar with political discourse. They are exposed to it through the news and social media. Many participate in political discourse at various level. Political discourse is about getting others to do what you think they should do. It is about winning, losing, and making concessions. This orientation encourages (sadly) intellectual dishonesty, because winning is more important than understanding the extent to which you might be wrong and your opponent might be right.

Participants must understand how ethical discourse is very different from political discourse. Ethical discourse is about better understanding what attitudes and behaviors we should embrace, and everyone's understanding can (and typically should) be bettered. Almost everyone has an intuition or preconceived notion about how we ought to behave. Nevertheless, every participant (including and especially you) should be prepared to change your mind about how we ought to behave. Ethical discourse has little value if you believe you already know what we should do. If an open mind is too much to expect (and maybe sometimes it is), participants must realize, at a bare minimum, that ethical discourse is a venue for practicing argument analysis and empathy to better understand and convince those who disagree. While this attitude may be a bit too Machiavellian, it might just be enough to allow the discourse to proceed.

Participants should understand that ethical discourse does not replace political discourse. It precedes political discourse. Before you can be justified in convincing others how to behave, you need a reasonable basis for knowing how we ought to behave. For complex problems like those associated with conservation, only ethical discourse can provide that basis.

It must be emphasized to participants that there is nothing to win or lose in ethical discourse, because it is not where the decisions are made. Lowering the stakes is important for disarming participants' interest to resort to intellectual dishonesty. Ethical discourse is about discovery and requires an interest in such discovery. Not every stakeholder will be interested in ethical discourse, and that's okay. There only needs to be enough interest to make the process legitimate.

What to expect from conservation ethics

Conservation ethics is not a silver bullet for conservation challenges. It is critical, but, by itself, insufficient. Good conservation decision-making also depends on good science, good politics, empathy, and intellectual honesty. Conservation ethics will not magically dissolve all ethical disagreements. By comparison, science leads to deeper understanding, but also almost always raises more questions than it answers. Similarly, conservation ethics leads to critical insight, even when it does not dissolve ethical conflict.

When conducted effectively, conservation ethics can also:

1) Reduce the set of potentially appropriate actions. Ethics is routinely able to show how a certain set of actions would be inappropriate. However, in some cases, one is faced with what seem to be two very different options, and argument analysis will suggest that either is permissible. This irresolvability is sometimes the nature of the circumstance – sometimes there simply is no single correct answer – while other times it reflects a limited ability to construct suitably critical arguments. In this way, ethics is like science, which is sometimes unable to distinguish between two very different hypotheses.

2) Identify the most important gaps in scientific knowledge. For example, the scientific premises in the argument table of page 15 reveal what ought to be considered priorities for future science with respect to wolf management.

3) Inspire humility among stakeholders. Participating in argument analysis is an reliable way to learn how very difficult argument analysis is. Participants routinely discover how unable they are to effectively defend their own views about what is right and wrong with respect to complex issues in conservation. These discoveries usually lead to the kind of humility necessary for civil discourse and appropriately cautious decision-making.

4) Generate common ground and transcendent perspectives. Challenges in conservation can generally be traced to a conflict between basic values, for example, endangered species conservation versus animal welfare, ecosystem health versus economic well-being, clean air and water versus individual liberty. These challenges become destructive conflicts when stakeholders totally and completely deny a basic, self-evident value espoused by another stakeholder. The discourse becomes hyperbolic.

This occurrence is so tragically common that incommensurable worldviews seem to be the fundamental nature of society.

Well-developed arguments in conservation ethics include premises that represent basic (and frequently self-evident) values. As premises in an argument, stakeholders have an opportunity to deny the appropriateness of any such premise. However, reasonable (and intellectually honest) people cannot deny the value of, for example, economic well-being, individual liberty, or the welfare of living creatures. Nor can they defend the appropriateness of harming elements of nature for no good reason. When argument analysis re-affirms the broad appropriateness of basic values, it regenerates the common ground – the shared values – that had been lost to hyperbole.

We do not live in Camelot. Ethical discourse can be stymied by intellectually dishonest stakeholders who persist in denying self-evident values or premises. Ethical discourse can endure such challenges. How? Recall, the product of ethical discourse and the audience of that product (i.e., the document detailing the results of the argument analysis described on page 19). "Unreasonable" stakeholders should be encouraged to express their arguments right alongside the arguments of "reasonable" stakeholders. An unreasonable argument will appear as such, but perhaps only when presented alongside a robustly reasonable argument. A "reasonable" stakeholder may not convince an "unreasonable" stakeholder of some truth. While desirable, that accomplishment may not be necessary. The challenge is to convince a third party, such as a decision maker. As such, the presence of an "unreasonable" stakeholder can be valuable for motivating "reasonable" stakeholders to develop truly robust arguments.

Finally, concerns about defeating "unreasonable" stakeholders are misplaced. Ethical discourse is not about defeating anything; it is about discovery. You can worry about defeating your opponent and their "unreasonable" arguments in political discourse.

With the common ground of shared basic values, the dialogue can shift to more productive issues. For example, precisely what do you mean by economic well-being: low poverty rate, maximum possible

growth in GDP, or something else? Precisely what do you mean by ecosystem health: an ecosystem that continues to produce what humans need, no human impact at all, or something else? When two values do conflict, an argument should be developed to better understand which value should be overridden.

The notion of overriding a value is complicated. Consider some examples. We value the freedom of the criminally insane; it's just that the value of public safety overrides the value of that freedom. We value private property, but imminent domain represents cases where the public good overrides the value of private property. Decisions that involve overriding value require considerable deliberation, because doing so represents an important kind of tragedy. Without this attitude, a value will not be merely overridden; it will be denied. Denying a legitimate value makes you unqualified to provide adequate deliberation about which value or how a value should be overridden, when doing so is unavoidable.

Conservation ethics is designed to be a slow and deliberative process precisely so that it can easily handle the time and care required to address complicated issues that characterize conservation ethics.

From a common ground of shared basic value, there is a fresh possibility (that is otherwise absent) for developing a transcendent perspective: a perspective that does not pit one value against the other, but one that synthesizes both values. This is not the compromise and concession that characterizes political discourse. It is ethical growth.

Resistance to Conservation Ethics

Before concluding this section on implementation, there is occasion to consider one final challenge: reluctance to engage conservation ethics in response to prejudged doubt about its value. Such doubts can rise from having experienced a variety of promising social decision-making process – structured decision-making or focus groups to name just two – and believing that none have improved conservation enough to be worth the effort. Why should conservation ethics be any different?

Such an attitude may reflect jadedness, but it is also rooted in a stunted understanding of ethics. That is, an action can be judged right or wrong because of its resulting consequence. Without moderation, this view leads to all the problems associated with "ends-justify-the-means" thinking. Some conservation professionals believe this view is justified by the very dire condition of our relationship with nature. Just a little ethical knowledge reveals the profound irony of this attitude. "Ends-justify-the-means" thinking is associated with two related formal schools of ethical thought known as Utilitarianism and Consequentialism. They contrast with other formal schools of ethical thought, which explain how motivation and virtue are equally important in judging what is right and wrong. The irony is that our present environmental crisis is very likely due, in large part, to overemphasizing Utilitarian and Consequentialist thinking.

While the ethical theories behind these schools of thought are rich, sophisticated, and fascinating, each of us began learning the essence of this balancing act between motivation and consequence as children in our relationship with our parents. For example, when a child explains, "I didn't mean to hurt my brother; he tripped over my leg." While first degree murder and man slaughter are both crimes, one is a lesser crime than the other because they differ with respect to the criminal's motivation. For accessible overviews on some important schools of ethical thought, see the entries for *Virtue Ethics*, *Deontology*, *Consequentialism*, and *The History of Utilitarianism* in the Stanford Encyclopedia of Philosophy, online at www. http://plato.stanford.edu/

To illustrate the critically important role that motivation and consequence can play in conservation ethics, consider this example: Why should we recycle our waste? Many believe that doing so will lead to sustainability. But this would only be so if enough other people also recycled. In seeing that too few others recycle, I am justified in not doing so, because doing so will not result in the desired consequence. This is a classic example of Tragedy of the Commons. However, it is also a quintessential example of the tragedy of overvaluing Consequentialism. The most robust reason to recycle is that it represents an important form of sharing (limited resources with others on the planet). Sharing is a virtue that generally represents the right thing to do, even if no one else does so, and even if it does not result make our community appreciably more sustainability (see endnote 5).

Conservation ethics is similar. We shouldn't be dissuaded from engaging in ethical discourse for fear that it might not be adequately effective. We should rather embrace it because thinking carefully about how we ought to behave is simply the right thing to do.

Conservation ethics is not just another method for involving stakeholders and their concerns, nor is it just another decision-making process. Conservation ethics is distinguished by its rules. They are the rules of argument analysis, and the subject of every textbook on critical thinking. Knowledge of and facility in using these rules – rules that are the foundation of Western thought – have tragically

waned in recent years, often in favor of political hyperbole.

There is another possible reason to resist ethical discourse. It demands that we explain ourselves in a fully transparent manner. Transparency is not in the interest of leaders who join intellectual dishonesty with political power to effectively promote their views. Resistance to conservation ethics may be an occasion to ask questions about intellectual dishonesty or jaded commitments to Consequentialism.

4. BASIC CONSERVATION ETHICS

Like many scholarly endeavors, conservation ethics has two elements, an applied element and a basic (or theoretical) element. This basic element is commonly referred to as environmental ethics. The issues that dominate environmental ethics literature – intrinsic value, human-nature duality, and the metaphysical nature of ecosystems – sometimes seem arcane. However, applied conservation ethics motivates a critical interest for at least some of these issues. In particular, many arguments in conservation ethics depend critically on an ethical premise which you may believe to be true, but would have a difficult time defending in the presence of any reasonable criticism. In other cases, an ethical premise may have unexpected implications that are not well-known to untrained ethicists. Knowing what ethicists have discovered about some of these issues can be helpful.

Ecosystem Health

For example, many arguments in conservation ethics are motivated by concern for ecosystem health. In such an argument, a key premise will be tantamount to "Ecosystem health is valuable." The premise begs the question, "What precisely is ecosystem health?" The importance and difficulty of this question reveals itself with an example:

(P1) Burmese pythons are an exotic species in Florida.
(P2) Exotic species are bad for ecosystem health.
(P3) We should promote ecosystem health.
(P4) Killing Burmese pythons in Florida would promote ecosystem health.
(C) We should kill Burmese pythons living in Florida.

Be mindful that many reasons might be offered for why we should or should not kill Burmese pythons (perhaps to conserve some endangered species). Those reasons would be the focus of other arguments. This argument, as most arguments should be, is focused on just one reason for killing Burmese pythons: promoting ecosystem health. Consequently, the appropriateness of this argument depends in large part on understanding the meaning of ecosystem health.

Extensive scholarship indicates that while there is no single definitive definition for ecosystem health, there are many insights. A skeptic might object, "The inability to develop an adequate definition for ecosystem health, after decades of effort, is a prime example of the intractable nature of conservation ethics." The criticism is misplaced. Ecosystem health is like justice and other important ethical concepts. Scholars and citizens have debated the meaning of justice for thousands of years. There is no single definitive answer, yet we have an effective justice system, and insight arising from discourse about justice contributes greatly to the effectiveness of that justice system. It is the insight arising from attempts to define ecosystem health that is so valuable.

The indeterminate nature of ecosystem health raises another similarity between ethics and science. For example, science cannot provide, after nearly a century of inquiry, a single definitive answer to the question, "How does predation affect prey populations?," except to say, "It depends." However, the scientific knowledge that justifies answering, "It depends," represents rich and useful insight. Ethical knowledge is similar.

Handling the concept of ecosystem health can begin by acknowledging two important and opposing perspectives: (i) ecosystems are healthy when they can produce, in perpetuity, all that humans need for their well-being, and (ii) ecosystems are healthy to the extent they are uninfluenced by humans – healthy ecosystems are "pristine" ecosystems. Each view expresses some critically important ideal and each suffers some critical weakness. The challenge for applied conservation ethics is to either navigate between these two idealistic extremes, or to identify the cases, if any exist, where one extreme view or the other is genuinely applicable. That delicate and difficult navigation is the burden of anyone developing an argument that depends on ecosystem health. Such arguments require a premise stating precisely what is meant by the phrase 'ecosystem health.'

Now consider (P2). Are exotic species inherently bad for ecosystem health? If so, it would likely be

necessary to articulate the premise that says so. Or are exotic species bad for compromising some specific aspect of ecosystem health? If so, understanding the appropriateness of (P2) will depend on the precise meaning of ecosystem health. Perhaps you think these concerns are pedantic. If so, you may lack the empathy required for effective argument analysis. It is a near guarantee that some reasonable stakeholder would not find the concern pedantic, but would reasonably expect an argument to included such premises. Rather than think the concern is trivial, consider it a necessary, but easy to accommodate, aspect of the argument. You can change your mind about how easily the concern is handled when you begin crafting and evaluating the premises.

And now consider (P4). Suppose you have identified what exactly it is that Burmese pythons do that compromises ecosystem health. Doing so does not automatically justify killing Burmese pythons. At this point is it useful to highlight the competing values associated with this argument:

ecosystem health and the lives of individual creatures. The circumstance may seem to suggest that one value must inevitably be overridden. What if killing as many pythons as possible is not expected to reduce python abundance enough to mitigate, in any appreciable way, the harm to ecosystem health? Is the killing still justified? A robust argument may have to replace (P4) with the technical details of how many pythons can be killed and what the likely effect of all that killing would be on ecosystem health. From a traditional management perspective, (P4) raises the concern for the most basic management failure of all: Incurring significant cost (financial and ethical) to implement a plan (killing pythons) that has little chance of accomplishing its intended goal (ecosystem health).

Scholars have written much about the meaning of ecosystem health and the metaphysical nature of ecosystems, which has informed a substantial literature on whether ecosystems possess intrinsic value. Sometimes that literature can seem obtuse. However, with this example in mind, you can begin to read that literature for the purpose of making robust arguments in conservation ethics.

Instrumental & Intrinsic Value

Environmental scholars have also developed a rich literature on the idea of intrinsic value. Much of that literature aims to explain what that value consists of and what kinds of things (non-human organisms, populations, ecosystems) possess that value. To appreciate these topics, consider this argument:

(P1) Red-cockaded woodpeckers are threatened by certain kinds of land development and forest management.
(P2) Red-cockaded woodpeckers are valuable for their role in the ecosystems to which they are native.
(P3) We should conserve species of such value.
(P4) Limiting certain kinds of land development and forest management would successfully conserve red-cockaded woodpeckers.
(C) Therefore, we should limit certain kinds of land development and forest management.

Begin by considering (P2). It says that red-cockaded woodpeckers have a certain kind of instrumental (or use) value. A thing is instrumentally valuable for what it does – the purpose it serves. A hammer is instrumentally valuable for pounding nails. Instrumental value contrasts with intrinsic value. Intrinsic value, while easy to intuit, can be difficult to explain. It is sometimes explained as value above and beyond instrumental value, and sometimes a thing is said to have intrinsic value

if it has value for its own sake. A thing can have both intrinsic value and instrumental value. For example, children have instrumental value (perhaps for mowing the lawn and washing dishes), but they also have intrinsic value. The critical difference between instrumental value and intrinsic value is that instrumental value can almost always be replaced or dismissed. A hammer's use value may be replaced by a nail gun, or dismissed by using screws.

Premise (P2) says red-cockaded woodpeckers have instrumental value for what they do for ecosystems. What if we came to believe the ecosystem could get along just fine without red-cockaded woodpeckers? Worse yet, what if ecosystem functioning is only important for how it serves humans? Then the question is simply: What if we came to believe we can get along without red-cockaded woodpeckers better then we would by spend all that effort conserving them? What if we could find another way – perhaps some kind of management or another species – that could do what red-cockaded woodpeckers do for the ecosystem? In any of these cases, the value of the red-cockaded woodpecker is replaced or dismissed and the argument to conserve the species falls.

Some argue that we sometimes need certain species or ecological processes, but simply do not recognize that need. Sometimes the point is expressed as the potential for discovering "the cure for cancer" in some underappreciated species of plant. If such an idea is important, express it as a premise, and see how it affects the argument. Nevertheless, the weakness of over-reliance on instrumental value will remain. It is likely that many aspects of nature have little or no (realized or potential) instrumental value for human welfare.

Now consider a replacement for (P2):

(P2') The species, red-cockaded woodpecker, is intrinsically valuable.

Premise (P2') raises several questions. The first question is, "Is the premise true?" Questions about who possesses intrinsic value date back thousands of years. The trend in the history of this dialogue is clear. As time goes on we realize that more and more of the things around us have intrinsic value. Long ago, we acted as though only rich, white guys possessed intrinsic value. Eventually, we began to include women and then all humans. Then we began to realize that non-human primates also have intrinsic value, then most mammals, and eventually most vertebrates. The discussion about what kinds of individuals have intrinsic value has centered on understanding what traits an organism must possess to be of intrinsic value. For about the last 150 years, it has been common to believe that sentience and the ability to experience pain garner intrinsic value. Biocentrism is a school of thought in environmental ethics which offers reason to think all living things possess intrinsic

value. Ecocentrism is another school of thought that offers reason to think ecological collectives, like species and ecosystems, also possess intrinsic value. One basis for thinking such collectives possess intrinsic value is that they are like living individuals in possessing homeostasis, and homeostasis is a trait that garners intrinsic value. Aldo Leopold was important for showing how ecocentrism matches our everyday sensibilities.

Once established, a premise like (P2') seems powerful, because intrinsic value cannot be replaced or dismissed. However, intrinsic value still presents some challenge. While it cannot be dismissed, intrinsic value can be overridden. When the conflict between two intrinsically valuable things is irresolvable, the value of one is usually overridden. This possibility leads one to ask questions such as, "If a human has more intrinsic value than a worm, doesn't the worm always lose?," or "If a worm has only a fraction of the intrinsic value that a human does, does the intrinsic value of a whole bunch of worms outweigh the intrinsic value of a single human?" The second question is complicated and worth understanding, but beyond the scope of this pamphlet.

However, insight on the first question is often revealed by asking, "Do the non-vital interests of a creature with intrinsic value outweigh the vital needs of another creature with intrinsic value?" For example, is the convenience of cell phone towers in a remote area on a migratory bird pathway (non-vital interest of a few humans) more important than the lives of thousands of birds that will be killed by the tower (vital interest of those birds)?

Despite the robust reasons to think red-cockaded woodpeckers possess intrinsic value, many who believe the premise shy away from it for fear that others will not accept it. Instead, they favor arguments rooted in instrumental value. The sway of relying on intrinsic value is reflected by the large amount of literature aimed at estimating the economic value of nature and ecosystem services. While these efforts may be important, their value may be easier to overestimate than is commonly appreciated.

While intrinsic value is a powerful premise, it can be difficult to defend among some influential stakeholders. The antidote is being facile with the arguments and counterarguments associated with intrinsic value. Importantly, verbiage in the U.S. Endangered Species Act makes it clear that species are valuable, not for their instrumental but for their intrinsic value. This suggests that nature's possession of intrinsic values is a reasonably mainstream idea.

Nevertheless, there is an influential, though controversial hypothesis, known as the Convergence Hypothesis (endnote 6), which suggests there may be no need to argue for nature's intrinsic value because efforts to do so are likely to fail among some stakeholders and because nature can be adequately conserved through the use of instrumental value alone.

Finally, using concepts like ecosystem health and intrinsic value routinely leads to basic questions, such as, "What is an endangered species?", "Are humans and nature separate or one-in-the-same?", "What is wilderness and why is it valuable?", "Does concern for conservation trump concern for animal welfare (e.g., in instances of killing exotic species)?", and "What is the role of hunting in conservation?" These and other relevant topics are the subject of a rich and broad literature in environmental ethics. Sustainability ethics also frequently leads to questions about what counts as fair and just treatment of humans and other organisms. Fairness and justice are also traditional topics in basic ethics. The development of robust arguments in applied ethics depends on a knowledge of basic ethics. This section provides a practical perspective from which you can begin to explore that literature (endnote 7).

5. CONCLUSION

The synthesis of disparate knowledge

Conservation and sustainability are widely appreciated to require transdisciplinary perspectives. But, what exactly does that mean? It means synthesizing disparate kinds of knowledge. Argument analysis is a critical tool for that synthesis. The wolf hunting argument that we considered involved only three kinds of premise, ecological, sociological, and ethical. But one can easily imagine an argument in conservation ethics that involved many different kinds of premises. Below is a simple, heuristic argument designed only to illustrate how an argument can be comprised of premises representing many different kinds of knowledge.

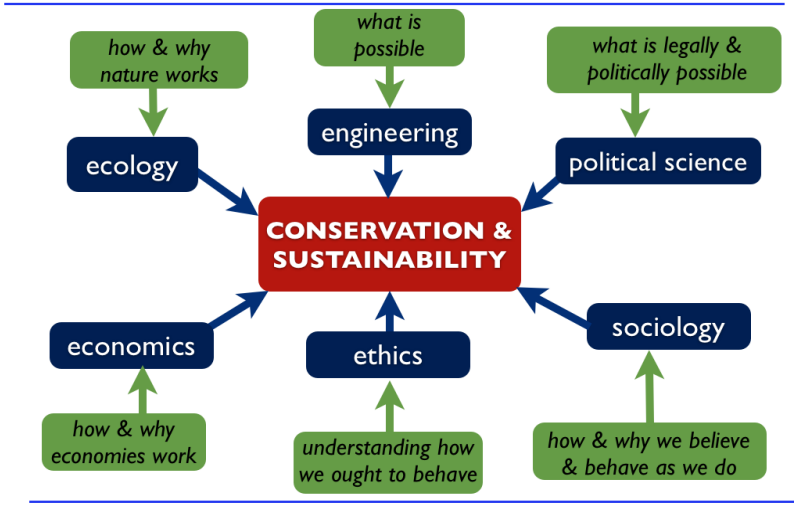
KIND:	PREMISES:
ecological	P1: Biodiversity is threatened by...
sociological	P2: Most people believe...
legal-political	P3: Current regulations permit...
economic	P4: Mitigating this concern would be financially costly.
ethical	P5: It is wrong to harm biodiversity.
	CONCLUSION: We should...

For emphasis, conservation ethics is not merely the synthesis among many kinds of scientific knowledge. Scientific premises are essentially descriptions of the world around us. Such descriptions alone cannot determine how we ought to act. In some cases, scientific premises describe limits on what courses of action are possible. And, ethics cannot prescribe that we ought to do something that is impossible. For these reasons, scientific premises can constrain or place limits on what can be judged as a right course of action. However, such constraints rarely represent a complete determination of how we ought to behave. In these ways, knowing how we ought to behave requires both scientific and ethical premises.

The diagram on the next page illustrates how each kind of knowledge contributes to ethical decision-making. The green boxes highlight how it is that the sciences (ecology, economics, etc.) essentially describe the world around us. Knowing how the world is, is not enough to determine how we ought to behave. That knowledge requires insight from ethics.

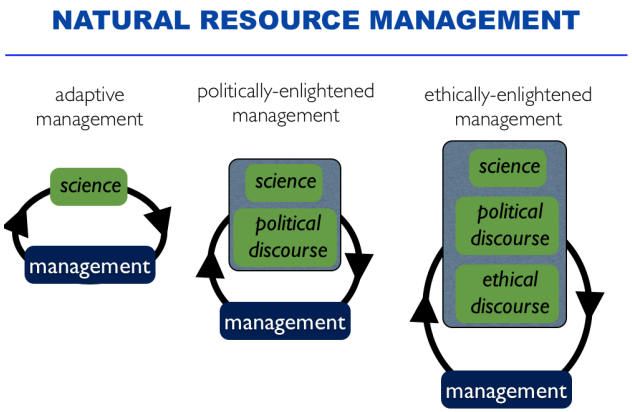
The evolution of management

Several decades ago, management was viewed as a never-ending conversation with science. Science would inform management decisions. The effect of those management decisions subsequently informed what new insights managers might hope to get from science. In all cases,



management decisions were made in a timely manner with the best-available science. Management was not, in general, suspended until all the science had been collected. This is the essence behind adaptive management.

After some time (especially beginning in the 1990s), more and more managers came to realize that good management also required a concurrent dialogue with stakeholders (i.e., political discourse). Expanding the focus of management to better handle the human dimensions of management was difficult. It required more time, resources, and skills from managers. There was no expectation that the expanded focus would make decision-making easier. The reason it was engaged is because managers realized it was the right way to make decisions. The future of management involves another expansion of focus to include ethical discourse. The role of ethical discourse in



decision-making is similar to science and politics. That is, decisions are always made, without inappropriate delay, on the best available ethical insights. At the same, time there is a commitment to continually pursue the development of ethical insight so that it can inform subsequent decisions.

Conservation decisions and sustainability decisions are fundamentally ethical decisions. This handbook outlines a method showing how these ethical concerns can be handled in a largely objective and logical manner. The future success of conservation and achievement of sustainability depends greatly on people like you learning, practicing, and applying the principles outlined in this handbook.

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END NOTES

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