

Discussion

Ethical Reasoning for Natural Resource Professionals

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Our objective is to present a process called argument analysis, which natural resource (NR) professionals can use to work through the myriad ethical issues they confront in their professional activities. Argument analysis can not only support NR professionals in making ethically appropriate decisions but also help them understand and explain *why* their decision is appropriate. In this primer we draw on examples that are most relevant to practicing foresters, but argument analysis can be applied in any NR context that requires a systematic process for ethical reasoning. Before proceeding, we briefly address three common misconceptions about ethics.

The first misconception is that ethics is irrelevant to NR professions. Clearly this is not true, as evidenced by several recent contributions in the *Journal of Forestry* (e.g., [Barnwell 2018](#), [Worrell 2019](#)). As advisers and/or decisionmakers who are entrusted to share technical expertise, NR professionals work in a position of influence. This creates the opportunity for them to execute their responsibilities with integrity, but it also opens up the potential for abuse. In this sense, ethics is part of the basic medium within which the NR professional moves ([Coufal 2019](#)). The goal of this essay is to outline a process that will equip them to navigate that medium thoughtfully and adroitly.

The second misconception is that ethical judgment is inescapably subjective and biased, and therefore unworthy of concerted attention and/or inaccessible to rational scrutiny. Humans are inherently subjective beings, and bias is unavoidable ([Haraway 1988](#), [Arkes 1991](#)). If we decide it is futile to engage in ethics on these grounds alone, we might as well give up on just about all our human endeavors. Robust ethical inquiry,

like robust scientific inquiry, will recognize and, to the extent possible, minimize the role of bias. For example, using a method such as argument analysis enhances the transparency of ethical reasoning, so that ethical beliefs and value judgments may be clearly identified and critically assessed.

The final misconception is that ethical reasoning requires only that you listen to your conscience. Conscience, as defined by Merriam-Webster, is a “sense or consciousness” about right and wrong. We might alternatively call it “moral intuition.” Recent research suggests moral intuitions reflect social instincts that emerged early in human history to support cooperative interactions in the evolutionary environment ([Haidt 2007](#)). Intuition is, according to this hypothesis, an integral part of the moral life. But relying solely on moral intuitions, without also engaging in reasoned consideration of those choices, creates at least three problems. First, conscience may offer little by way of guidance for the questions often encountered by natural resource professionals, e.g., the ethics of fee-splitting by practicing foresters. Second, in the social sphere (which includes professional activities), we are held accountable for explaining and justifying our actions ([Haidt 2007](#)), which requires us to present and defend reasons for the decisions we make. “My conscience told me to do it” is not likely to be persuasive. And third, humans have ingrained tendencies to see the world in ways that confirm pre-held beliefs and protect cherished goals or values ([Nickerson 1998](#), [Ditto et al. 2009](#)). Your conscience might be highly motivated to tell you to do things that your reasoned self (and others in the social sphere) would avoid. Although the dictates of “conscience” should not be dismissed outright, they *should*

be critically evaluated. This is what ethics, as a process, is all about.

A Process for Argument Analysis

Although the topic of this essay is ethics, our focus is less on the substantive content of ethical judgment (e.g., ideas about justice, welfare, care, or value) than on the methods of ethics, or ethical reasoning. Ethical reasoning is a deliberative process used to reach and justify a moral decision. Reasoning, in general, involves inferences, which can be formally articulated and evaluated as *arguments* by following a process called *argument analysis*.¹ The major steps of the process are as follows:

1. State an ethical question.
2. Create a table of reasons.
3. Formulate an argument.
4. Evaluate the argument.
5. Return to the table of reasons.
6. Make and justify your decision.

Step 1. State an Ethical Question

The first step is to state the question you face as an ethical question.² Consider a case in which a client proposes activities that violate professional standards (whether your own standards, those of your professional organization, or even administrative or state regulations). You would start by asking yourself, “should I notify the client of this violation?” Asking yourself if you “should” do something clearly signals that the issue at hand raises an ethical question.

Step 2. Create a Table of Reasons

With your question formulated, two answers immediately suggest themselves: yes, you should notify the client; or no, you should not. You will probably be able

to cite reasons pointing in both directions. In step 2, you catalog these reasons in a table (Table 1).

You may be surprised to observe that some of the reasons in Table 1 express factual considerations. This is normal. Ethical appropriateness is not a static or purely abstracted quality of human action. Our notions of right or wrong emerge in relation to our understanding of facts and context. Compare, for example, the theft of a candy bar committed as a petty crime by a bored, affluent teenager, versus the same act committed in desperation by a starving child. Perhaps both thefts will be judged inappropriate, or perhaps not; but the evaluative process by which each judgment is reached will certainly differ, based on factual details. Here we use hypothetical examples that minimize factual details so as to stay focused on the method of argument analysis itself. In practice, however, one of the greatest strengths of argument analysis is its ability to clearly assess both factual and ethical claims that are relevant to an ethical choice.

Step 3. Formulate the Argument

An argument, formally, is composed of a series of propositions, called *premises*, which support a claim, or *conclusion*. In ethical reasoning, the arguments you consider will culminate in *prescriptive* conclusions, which indicate a course of action you *should* follow (e.g., “I should notify the client” or “I should not notify the client”). These two conclusions will be reached by multiple chains of inference, each built around one of the reasons in your reason table.

For example, consider the first reason in the left column of Table 1. Start by embedding the reason in a premise leading to the conclusion that you should notify the client:

- P1. The client proposes to violate a professional standard codified in state law.

Table 1. Table of reasons.

Yes, I should notify the client	No, I should not notify the client
The professional standard is codified in state law	Violating the professional standard might result in termination of employment
Violating the professional standard is associated with unknown outcomes	Violating the professional standard will not lead to any known damages
The client has a right to know	Professional standards are ambiguous and open to interpretation
Professional standards should just be followed	The client is an elderly woman living off social security—she needs money

Note: Reasons are based on the question, “Should I notify the client that proposed activities violate professional standards?”

C. Therefore, I should notify the client that her proposal violates the professional standard.

At this stage, ask yourself what other premises you need to link this premise to this conclusion. Building an argument is a bit like solving a puzzle, where the goal is to piece together all the premises you need—but no more—to support the conclusion. For example:

- P1. The client proposes to violate a professional standard codified in state law.
- P2. Activities that violate professional standards codified in state law are illegal.
- P3. I should do what I must to avoid illegal activities.
- P4. To avoid illegal activities, I must notify the client that her proposal violates the professional standard.
- C. Therefore, I should notify the client that her proposal violates the professional standard.

As a basic rule of logic, any time an argument culminates in a prescriptive conclusion—i.e., any time you are engaged in practical ethical reasoning—there must be at least one prescriptive, or ethical, premise. Usually ethical premises will be readily recognizable because they state something that “should” or “ought to” be the case.³ Here P3 is the essential ethical premise. Although we cannot offer any strict rules for articulating ethical premises, often it will help to look at your original reason and ask, “why?” In the example above you may ask yourself, “Why am I troubled by the prospect of violating standards codified in state law?” This question would lead you, perhaps, to the matter of legality and the premise (P3) that you should avoid illegal activity.⁴ From there, two additional links are required to complete the inference: P2, which connects codification in state law to the matter of legality; and P4, which identifies what you must do, in practical terms, to follow the ethical prescription in P3.

This is just one structure an argument might take. As a general rule, you should approach argument formulation by asking yourself, “What are all the claims that must be true for this reason to support this conclusion?” Once you reach a point at which the conclusion

must be true, given your stated premises and the connections between them, your argument is complete.

Step 4. Evaluate the Argument

Evaluating an argument requires you to assess whether the argument meets two requirements:

1. **Validity.** To meet the validity requirement, it must be the case that (a) your premises provide all the information necessary to reach the conclusion, and (b) the conclusion is necessarily true given the premises you have. Additional information about validity is provided in [Box 1](#).
2. **Verity.** To meet the verity requirement, it must be the case that all of the premises are true, or can reasonably be considered appropriate.

If these requirements are met, you have a *sound* argument. This means the conclusion is rationally defensible.

To evaluate an argument, it is helpful to organize information in an argument table, as shown in [Table 2](#). The first column simply states the premise. The middle column identifies the type of premise, allowing you to easily assess whether you have the requisite ethical premise. In the third column, you evaluate truthfulness, in the case of factual or empirical premises; or appropriateness, in the case of ethical premises. The evaluations of P1 and P2, as denoted in [Table 2](#), might be based on the following considerations.⁵

P1 is a simple fact. Notifying the client carries some risk of termination. P2, being an ethical claim, is evaluated for appropriateness, and this is where the substantive work of ethical judgment takes place. You can start by seeking guidance in your professional code of ethics. It is also useful to have some working knowledge of ethical theory and environmental ethics (we recommend a few accessible resources at the end of this essay). In all cases, when evaluating the appropriateness of ethical premises, it is essential to uphold a commitment to openness, honesty, and critical self-reflection, and to actively guard against bias. In this example, personal or prudential concerns may tempt you to affirm the

Box 1. Validity tips

One of the most common validity problems we see, especially in NR contexts, is the omission of an ethical premise. If at least one premise is not ethical, but the argument culminates in a prescriptive conclusion, you automatically know your argument is not valid. However, an ethical premise is a necessary but not sufficient condition for validity in an ethical argument. There are many ways an argument may be invalid. These often follow standard forms, called fallacies. Familiarity with some of the common fallacies will be helpful for any NR professional who engages regularly in argument analysis. Many accessible resources can be found online by entering the term “logical fallacies” in any standard search engine. In our opinion, Wikipedia is among the best resources available: https://en.wikipedia.org/wiki/List_of_fallacies.

Table 2. Argument table.

Premise*	Type	True/appropriate?
P1. Notifying the client might result in termination of my employment.	Factual	True
P2. I should not engage in actions that might result in termination of my employment.	Ethical	Not in general
C. Therefore, I should not notify the client.		

Note: Here we show a simple version of an argument table, but additional columns can be added to meet your specific preferences or objectives. For example, you might choose to add columns where you can indicate uncertainty or controversiality, or enter comments explaining your judgments in the truth/appropriateness column.

*This argument is based on the first reason in the second column of [Table 1](#).

appropriateness of P2. However, on reasoned consideration, P2 is not readily defensible as an ethical claim.

To demonstrate why, we repeat the argument formulation step, but this time with the ethical premise P2 stated verbatim as the conclusion of its own argument. This is called a *secondary argument*. By formulating a secondary argument (denoted by the superscript “a”), we can now clearly examine the chain of inference supporting P2 in the original argument. For example:

P1^a. If my employment is terminated, my family will face insecurity.

P2^a. I should not engage in actions that might result in my family facing insecurity.

C^a. Therefore, I should not engage in actions that might result in termination of my employment.

And now we evaluate this argument. P1^a can be considered true. If one must work to live (as many do), termination of employment would put the security of oneself and one’s family in jeopardy, at least in the short term.

P2^a may seem appropriate at face value, in that it expresses a seemingly upright sense of love for and duty toward one’s family.⁶ However, further scrutiny is warranted. Note that P1 of the main argument ([Table 2](#)) establishes termination as a possible outcome of notifying the client, not a certainty. Consistency between all the sub-components of an argument’s premises, sometimes called *variables* (e.g., “notifying the client,” “might result in”), is logically required to connect the chain of inference. As such, P2 (and, by extension, P2^a) must also be stated with reference to the possibility, rather than the certainty, of unemployment. When stated as an obligation to avoid the mere possibility of insecurity, P2^a is difficult to defend. If you accept P2^a, you are then committed to believing you ought not engage in any action that carries even a remote possibility of jeopardizing your family’s security. Assuming you and your ability to work are essential to

your family’s security, the premise implies you should not do anything to put your physical health or safety at risk. This includes acts that are generally considered laudable, such as military service or volunteer fire-fighting; as well as rather mundane activities, such as playing football or driving a car. This obligation may even preclude you performing the normal fieldwork required in your employment as a forester.

With these considerations, we deem P2^a to be indefensible as a general ethical claim. Recall, even if an argument is valid, if just one premise is false or inappropriate, the argument is not sound. Because P2^a is not appropriate, the secondary argument is not sound. This indicates that P2 in the main argument is not justified (i.e., not appropriate), and so the main argument also is not sound.

Step 5. Return to the Reason Table

Finding an argument is not sound does not necessarily mean the conclusion is wrong, but it does imply you should not act on that conclusion primarily for that reason. To conduct a complete analysis, you should repeat steps 3 and 4 for each reason in the table. Once you have evaluated all the arguments, it is time to make a decision.

Step 6. Make and Justify Your Decision

The goal of argument analysis is to lead you to a decision that is supported by sound arguments—this is the definition of rational decisionmaking. Ideally you will find one conclusion is supported by at least one sound argument, whereas the other conclusion is not supported by any sound arguments. In this case, the appropriate choice is clear.

At times both conclusions may be supported by sound arguments, seemingly pointing you in two directions. In this case, following the prescription of one conclusion (e.g., notifying the client) in a way that also upholds the ethical obligations underpinning sound

arguments supporting the opposite conclusion (e.g., that you should not notify the client) is the preferred course of action.

On the other hand, if there are no sound arguments on either side, you would be well advised to consider alternative courses of action that were perhaps previously overlooked. If an argument is unsound because the truth of a factual premise is uncertain, you may need to delay your decision while you seek out additional information to eliminate or reduce the uncertainty. Consulting with colleagues or trusted mentors would be another general strategy, as they can review your analysis and highlight considerations you may have missed.

Sometimes all these strategies will fail, and you will have to proceed in the way that seems most appropriate, all things considered, to account for the various ethical obligations at play. This will require a judgment call. Fortunately, argument analysis creates transparency and accountability. If your final decision is contested, by yourself or others, you will still be able to demonstrate that it was reached by a thorough, systematic process. (For this reason, we recommend you carefully document your argument analysis). A key goal of this exercise is to build support for your decision, such that you could persuade a neutral third party that it is justified. This can be achieved by demonstrating you made your final judgment diligently and deliberately, and not based on gut feelings, rules of thumb, or mere expedience. Your decision may still be challenged, but no one will be able to reasonably accuse you of careless or arbitrary decisionmaking.

Concluding Remarks

The arguments presented above clearly raise a host of additional questions. For example:

- If you conclude you are ethically obligated to notify the client of the violation, should you issue this notification formally in writing?
- If the client still wishes to proceed, even after being notified, is it then appropriate for you to violate the professional standard?
- If you do proceed and violate the professional standard, should you report the incident to authorities?

Each of these questions could be the basis of its own argument analysis. Remember, ethics is an integral element of professional life. You should expect to engage in ethical reasoning regularly. On the other hand, professional activities are governed by more than ethical concerns. Social, financial, and logistical considerations will also inevitably come to bear on your

decisions, and determining whether or under what circumstances you allow these to override ethical considerations will require a judgment call. In general, though, and as a matter of best practice, NR professionals should strive to engage in ethically appropriate conduct, which necessarily requires them to engage in ethical reasoning. We hope our brief overview of argument analysis will prove useful to this end. To learn more, please consult the following resources.

Additional Readings

Curry, P. 2011. *Ecological ethics*, 2nd ed. Polity Press, Malden, MA. 332 p.

This book provides an overview of environmental ethics (or “ecological ethics,” in the author’s preferred terminology), a branch of ethics that is highly pertinent to forestry and other NR professions. Unlike the anthology edited Pojman et al., listed below, this is not a volume of primary material, but a summary of major schools of thought in environmental ethics, and a synthesis of the most influential arguments that have been advanced.

Curtler, H.M. 2004. *Ethical argument: Critical thinking in ethics*, 2nd ed. Oxford University Press, New York. 184 p.

This is a user-friendly guide for professional ethics, which outlines a step-by-step process for ethical reasoning. The book also handles more substantive ethical considerations, providing simple “rules of thumb” that, in many cases, will be helpful for evaluating the appropriateness of ethical premises.

Pojman, L.P., P. Pojman, P., and K. McShane (eds.). 2016. *Environmental ethics: Readings in theory and application*, 7th ed. Cengage, Boston. 800 p.

This is an edited volume containing key works in environmental ethics. The anthology covers a range of topics, from matters of highly theoretical interest (e.g., the concept of “nature”) to highly applied questions (e.g., food ethics). Although any committed student of ethics would be well advised to read all of the entries, those with limited time may also sample the works most relevant to their field or professional responsibilities.

Vaughn, L. 2016. *Doing ethics: Moral reasoning and contemporary issues*, 4th ed. W.W. Norton & Company, New York. 775 p.

This is an excellent resource about ethics overall, written in simple, clear language with numerous examples. The author devotes a chapter to argument analysis, which readers are encouraged to compare with the account above. This chapter also features a short section on fallacies. In addition, the book provides an overview of major ethical theories, which will be useful to those who seek to engage seriously in ethical reasoning. The final portion of the book considers a series of issues in applied ethics, which will be of limited interest to most NR professionals. There is, however, one chapter on environmental ethics, which

offers a briefer (albeit much abridged) alternative to the two resources about environmental ethics listed above.

Vucetich, J.A., and M.P. Nelson. 2012. *A handbook of conservation and sustainability ethics*. CEF Occasional Paper Series, issue #1. Available online at http://www.conservationethics.org/Conservation_Ethics/What_is_ethics_files/Conservation%20Ethics%20Handbook%20web.pdf; last accessed June 11, 2019.

This is a brief but thorough overview of the argument analysis process. It is written in an accessible manner, and is freely available at the website noted above. We highly recommend it as a primer for those who are interested in integrating argument analysis into their professional activities. Of the works cited here this is our preferred resource for ethical reasoning, as it is focused specifically on ethical issues in NR.

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Endnote

1. Although we focus here on questions of professional ethics, argument analysis can also be used to ethically assess proposed NR policies or management actions, e.g., using prescribed fire to reduce fuel loads in eastern Oregon (see, e.g., Vucetich and Nelson 2014, Batavia and Nelson 2018).
2. It can at times be challenging even to realize that you face an ethical question. This step, like the others, will become easier as you become more fluent with ethical reasoning.
3. Ethical premises can be expressed in the form of prescriptions (e.g., you ought to follow the law) or prohibitions (e.g., you ought not violate the law). Occasionally ethical premises assume different forms as well. For example, a premise stating that something is good, important, or imperative can also serve as an ethical premise.

4. There are non-moral motivations to follow the law as well, but since this is an exercise in ethical reasoning, we articulate P3 as a statement of a moral obligation.
5. Bear in mind that we are relying on a generic example. An actual evaluation of this argument might yield judgments that deviate from those discussed here, based on contextual details.
6. These values could be demonstrated formally with yet another, *tertiary argument*, culminating in the conclusion, "Therefore, I should not engage in actions that might result in my family facing insecurity."

Literature Cited

- Arkes, H.R. 1991. Costs and benefits of judgment errors: Implications for debiasing. *Psychol. Bull.* 110(3):486–498.
- Barnwell, J. 2018. Professional credibility: Is compliance enough? *J. For.* 117(1):77.
- Batavia, C.B., and M.P. Nelson. 2018. Ethical foundations for the lethal management of double-crested cormorants (*Phalacrocorax auratus*) in the eastern United States: An argument analysis. *Waterbirds* 41(2):198–207.
- Coufal, J.E. 2019. Forestry: Profession, professional, professionalism. *J. For.* 117(2):180–181.
- Ditto, P.H., D.A. Pizarro, and D. Tannenbaum. 2009. Motivated moral reasoning. P. 307–338 in *The psychology of learning and motivation*, vol. 50, Bartels, D.M., C.W. Bauman, L.J. Skitka, and D.L. Medin (eds.). Academic Press, Burlington, MA.
- Haidt, J. 2007. The new synthesis in moral psychology. *Science* 316(5827):998–1002.
- Haraway, D. 1988. Situated knowledges: the science question in feminism and the privilege of partial perspective. *Feminist Stud.* 14(3):575–599.
- Nickerson, R.S. 1998. Confirmation bias: A ubiquitous phenomenon in many guises. *Rev. Gen. Psychol.* 2(2):175–220.
- Vucetich, J.A., and M.P. Nelson. 2014. Wolf hunting and the ethics of predator control. P. 411–429 in *The Oxford handbook of animal studies*, L. Kalof (ed.). Oxford University Press, New York.
- Worrell, E.G. Jr. 2019. ACF code of ethics—review process. *J. For.* 117(2):183.