



# Sample Case Analysis

## Description

This page shows a sample case analysis for the course [Genomics, Ethics, and Society](#).

## Body

Below is a "model" answer to the [whitebark pine case](#). The case doesn't focus on genomics, but nonetheless, the way the model answer is laid out should help you to see what's being asked for. You should refer back to this model when you are writing up case studies of your own. While undergraduates should find this model useful, it's more like a graduate case study in terms of length and complexity. By a "model" answer, we don't mean that this answer is perfect; and obviously there's much more that could be said. But an answer with this kind of structure, content, and use of resources, would get a strong A.

When you analyse a case study, you're usually considering a complex situation where many different interests and values are at stake. This makes it easy to get tangled up in your answer too: so here's some tips for answering the case study well.

1. Write a clear introduction in which you (a) identify what you are going to talk about (b) give some idea of how you are going to structure the paper by setting up "signposts"; and (c) outline what view or policy position you're going to argue for. (Usually case studies ask you to recommend a view, policy or position.) You may be able to say much more than you have room for; if so, be explicit at the beginning about what you're not discussing for space reasons, so the person grading knows you did think about it!

2. Stick to the structure you've outlined.
3. In the course of analyzing the case, be sure to explain what values you think are at stake, where appropriate, who the stakeholders are, and why this case is likely to be contested.
4. In some cases it may be useful to consider the perspectives of different stakeholders and different ethical theories: for instance, will someone who is worried about violating rights regard the ethical issues differently from someone who is concerned about maximizing overall good (say in terms of human welfare?)
5. Where you use terms such as "liberty" "utilitarianism" "wildness" or "rights" make sure that you explain how you are using them as if to someone who is unfamiliar with the terms.
6. Make an argument for which approach or approaches you think is/are best in the particular situation being described, and why. However, while doing so you should also explain the difficulties with the view for which you're arguing, what someone might say who disagreed with the argument, and why their objection is not a good one/there's a good response to it, etc. If you are really ambivalent about the case, say so and explain why.
7. You should reference carefully, both in-text and in the reference section. If you quote or paraphrase anything, or you're dependent on a publication, you must provide an in-text reference. We don't mind what referencing system you use in your references, but your references should be detailed enough for us to find them (ie not just author and title).

Drawing on the whitebark pine case, here's just an example how you might find the ethics assessment process useful:

## **Ethics Assessment Process and the Whitebark Pine Case**

### **1) Seeing the Problem**

What are the main ethical issues and conflicts presented in the case?

The case asks us to focus on the selection of rust-resistant strains and the assisted migration of WBP. While the selection of rust resistant strains doesn't raise all the ethical problems that GM does, it still means that there's enhanced human intervention and deliberate action involved in what trees end up existing (which may raise value questions about loss of wildness). Assisted

migration raises a number of ethical issues and potential conflicts, primarily (a) the value of protecting a species from extinction (b) the possible ecological disvalues (and values) of deliberately introducing a species into a new area (c) the possible loss of wildness (d) cultural, historical and aesthetic values - could these be preserved? (e) questions about who owns the land where the trees would be moved (property rights, perhaps indigenous peoples, questions of environmental justice) and relevant consultative processes (f) potential effects on sentient animals, especially Clark's Nutcrackers. From some ethical perspectives there could be "in principle" objections here. For instance, it might be argued that in principle humans shouldn't "interfere" in nature to move things, or that if moving WBP infringes on the rights of indigenous peoples, it is unethical in principle. On the other hand, an ethical approach that focuses on consequences will attempt to weigh and balance the values involved and make a decision based on what is likely to bring about the best outcome overall.

**Who are the stakeholders and what are their respective positions? What decisions and/or impacts do they face?**

Some of the issues here involve very general groups of stakeholders: eg those who maintain that all species are valuable, so will want to protect the WBP; those who value the unusual aesthetics of the whitebark pine (these may be hikers and photographers) so may want it to be saved (this will depend on whether the aesthetic value is tied to current geographic location; if it is then moving it won't save the value). It might be argued that future generations of humans are stakeholders; they would never get to see or enjoy landscapes created by this iconic species. More specific groups of stakeholders include: biologists doing the research, both those working on genetic selection of the tree and those involved in planning assisted migration - they are likely to be in favor of both actions, and to see it as developing their research and conservation work. There are also likely to be biologists who oppose all plans for assisted migration, primarily because they are concerned about moved organisms becoming invasive. All those who generally oppose genetic selection of wild organisms are likely to oppose it in this case. Those who own/live near potential relocation sites have a clear stake in what may happen, though these individuals may be in favor of or opposed to the relocation, depending on the predicted ecological/cultural consequences of moving it and the forms of consultation involved. If sentient non-humans can be stakeholders,

Clark's Nutcrackers should be considered, but it's difficult to make sense of what the relocation might mean for individual Clark's Nutcrackers, since the relocation would not occur until the trees were mature enough to have seeds. The nutcrackers then moved will likely be harmed; but either they or their offspring may over time also be benefited. It could be argued by some that species themselves are stakeholders, though that view would be difficult to defend.

## 2) Empirical Issues

What empirical information is most important for addressing the main ethical questions?

What empirical facts are widely accepted, based on scientific evidence and peer review, about this issue? What empirical issues are contested or uncertain? How good is the information we have? Is it reliable?

Is there other information it would be useful to have? How could we go about obtaining this information? What should we check on or verify? Are there obvious ways of doing this?

There is some reasonably uncontested empirical information: that the WBP is threatened, that climate change means its climate envelope will move (though there is disagreement about the precision of climate models). Research suggests that rust resistant WBP is possible, and there are already strains of WBP in existence that are more resistant than others. The most important empirical information needed in terms of the relocation is: what are the ecological impacts of relocating likely to be? Also needed is empirical information about how people in recipient communities would regard the relocation. This information could be collected, though trial sites would take a long time to become established.

## 3) Conflicting Values

What values are at stake in the case?

Values at stake include:

- *Wildness*: (loss of wildness/naturalness in selecting strains; loss of wildness in human-caused relocation; possible loss of wildness in relocation site)

- *Aesthetic value*: whitebark pine has high aesthetic value
- *Cultural/historical value*: the iconic value of the tree as a symbol of the harshness and challenges of the American West
- *Justice*: Might be a cause of procedural and distributional environmental injustice if transplanted onto indigenous lands without adequate consultation or against their will (or other private lands)
- *Species values*: If it's thought that species have moral status, then causing extinction is wrong (and this is human-caused, even if not intentionally). On the other hand, if assisted migration of WBP threatened other species then assisted migration would be problematic for this reason.
- *Suffering and welfare*: On many ethical views, suffering is a disvalue. If translocating Clark's Nutcrackers causes them or individuals of other species suffering, that would be a problem. If translocating WBP provided habitat or food for other species eg individual bears and enhanced their welfare, that would be positive.

Which values have priority for which stakeholders?

Will particular decisions lead to the sacrifice of specific values? Is there any way of avoiding this?

Any decision here is going to involve the loss of wildness, which may be of concern to wilderness defenders - at least, those who value places free of human influence. This wildness loss can't be avoided. Any context-related value will be lost too, whatever is decided. It may be possible to avoid justice problems at the relocation site by adequate consultation & respect for local residents' and indigenous peoples' concerns and preferences. There may also be ways of minimizing suffering to Clark's nutcrackers, but this is likely to make the operation more expensive. Not acting to save the WBP will involve loss of its aesthetic value for present and future generations.

#### **4) Moral Imagination**

Given the goals and objectives of the decision-makers, are there alternative courses of action that could be taken that fall outside the obvious parameters of this case? Can these be adopted without sacrificing any other goals or objectives?

When there are threats from climate change, organisms have to either adapt where they are or move. WBP additionally faces current problems from rust and

beetles. Natural adaptation *in situ* alone is unlikely to happen, and moving the WBP without making it rust-resistant risks the same problems following it to the new location. And it's unlikely the species will survive in its current locations, even if rust-resistant strains were introduced. So, the remaining alternative option (given that climate change is unlikely to stop) is just to let the tree become extinct and do nothing. This sacrifices species and aesthetic values, but is less ecologically risky in the reception ecosystem, is unlikely to cause new suffering (after all, the animals that lose WBP seeds for food in its current range will lose the seeds even if there is new WBP 600 miles north; and nutcrackers won't have to be relocated) and avoids any justice concerns at the relocation site.

## 5) Moral Justification

Among the available alternatives, which can be reasonably ethically defended?

Of the ethically defensible alternatives, is there one that's clearly the best?

Both the main options (do nothing; move) can be ethically defended. For particular empirical reasons in this case, "move" may look best. However, judgment about this really depends on which values are prioritized and how precautionary you are.

## 6) Moral Criteria

Taking each alternative response to the case in turn (may not all be relevant to every case).

NB: In this case, whatever is done, some things are lost. For instance, those who value WBP as important cultural symbols of the American West, in their particular geographical locations, are going to lose this value whatever happens, since they can't be preserved in their current location

**Harm and Benefit:** Does this alternative cause harm? Does it cause less harm than the other alternatives? Does it bring about benefits?

1. *Do nothing:* Likely extinction of WBP. If species can be harmed, this causes species harm, but this argument is difficult to defend. If future people can be harmed, and if loss of a species can harm them, WBP extinction does harm them.

2. *Move without rust selection* This risks future harm to trees through WPBR and beetle, even in the new location. It's possible that if ecosystems/species can be harmed that WBP in the new location could harm them (but there's also a possibility of benefit). Possible harms to nutcrackers.
3. *Select and move*: Less risk of harm to trees in future. Small risk of harm to other species/systems from relocation. Also risk of harm to nutcrackers.

**Justice:** How does this alternative distribute harms and benefits or other natural and social goods? Are those affected meaningfully involved in decision-making?

1. *Do nothing*: The species going extinct may affect some people's interests, but it's not really an injustice. It would be difficult to consult about not saving the tree, other than by surveys.
2. *Move (select or not)*: The main location of a possible injustice to people lies in the move to new habitat without consultation or against the will of those who live there or own the land.

**Other human values:** Does this alternative have significant impacts on privacy, liberty, or other human values?

Moving could impact on property rights.

**Environmental values:** Does this alternative have significant impact on the non-human world?

All options have significant impacts on the non-human world, either by letting a species go extinct, or by selecting forms resistant to disease/ moving them to a new ecosystem. This is really a case where different environmental values are in conflict AND sometimes the same values are in conflict (eg moving WBP may save one species and threaten others, may protect one aesthetic value while changing another etc)

**Ethical theories:** What might different ethical theories say about what should be done?

- Consequentialist approaches will sum values; what values count will depend on the approach. Utilitarians, for instance, will sum pleasure net of pain over time; this will include humans and sentient animals. So the

impacts gains/losses of values on human happiness will matter; so also impacts on Clark's nutcrackers and other animals that use WBP for food or habitat.

- Rights theories: Relocation, if not handled appropriately, could violate property rights, or the rights of indigenous peoples to self-determination over their own land. If animals have rights, relocation of Clark's nutcrackers, if this constituted a serious harm to individual birds, would violate their rights. If rights are regarded as inviolable or virtually inviolable, these hurdles would have to be overcome for the relocation to be ethically permissible. If it could be argued that species have rights (which is doubtful) then the WBP might be argued to have a compensatory "right" to relocation, since humans are in part at least responsible for their being endangered.
- Virtue theory: As this is primarily a policy issue rather than a personal or professional issue, virtue theory is less helpful in thinking about this case.

## 7) Other Criteria

**Practicality:** Are specific alternatives really feasible?

All the considered alternatives are at least plausible. The relocation has had trials and is short-term successful (over a couple of years); selected rust resistance is currently being trialed. There may be hurdles to both, but not evident at the moment.

**Publicity:** How would the public react to different alternatives?

Reactions will be mixed. Some will want to save the species. Others will regard the relocation as unacceptable interference in "nature" or the wild, with potentially bad consequences.

**Collegiality:** How would one's peers react to different alternatives?

Not so relevant here.

**Reversibility:** Can a decision made be revisited?

If the tree goes extinct, while de-extinction is perhaps possible, it's unlikely. If it's relocated, and proves to be invasive, it's easy to remove (slow growing, slow to reproductively mature, easy to locate, needs nutcrackers). It seems



likely that most of the potential ecological harms of any move could be reversed.

[Continue to Sample Case Response](#)

**Notes**

NB: The case study and case analysis here draws on: Palmer, C. & Larson, B. 2014. "Should we move the Whitebark Pine?" *Environmental Values* 23: 641-662.

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Use of Materials on the OEC

**Resource Type**

Instructor Materials

**Topics**

Case Study Method

**Discipline(s)**

Life and Environmental Sciences  
Genetics and Genomics