



THINK OF GULLS AND GARBAGE dumps. Or condors and lead. Contemplate ravens and desert tortoises. Focus on deer and coyotes. For that matter, recall the Yellowstone fires. Mull over protecting species from climate change. One philosophical quandary links each of these issues, and every time it surfaces, it manages to sow dissension, debate, bile, ill will, and outright intolerance in a community that otherwise can demonstrate remarkable political solidarity.

At issue is how far and when humans should intrude into the processes of nature. Gulls, for example, have prospered in the Northeast during the last several decades because the refuse mountains of New York and Boston beckon to them much as walls of Velcro do to David Letterman. Young gulls survive better and the numbers of Great Black-backed and Herring gulls that prey on baby terns, puffins, and eiders have multiplied. Now many biologists who study coastal seabirds in the Northeast voice concern over the likely impact that gulls have on neighboring species. Ask Peter Hicklin about how many eider chicks disappear into gull gullets. Ask Steve Kress what percentage of Northeast coastal colonial waterbird biologists are convinced that gulls are the root of their populations' demises. According to a recent survey Kress conducted, close to 90 percent support this interpretation for various tern species in the Northeast.

Gulls are what gulls eat

Should gulls be controlled? (An excellent euphemism, if I ever saw one.) It prompts images of a model airplane gull banking to the right as a watchful endangered species biologist tweaks its joystick. Think what fun it would have been to have one of these on Inauguration Day. Gull control techniques—guns and poison, basically—are simple, feasible, and likely to be successful when applied with conviction. Yet I doubt that a large number of *American Birds* readers would move ahead without some real hesitation.

Wildlife managers charged with managing game species have not agonized over this sort of quandary in the past because their mandate has been clear: optimize the stock available to hunters. The hunting community, moreover, has death as part of its tradition.

In the case of gulls vs puffins, however, and increasingly throughout the world, conservation biology runs headlong into this debate. Many of the species involved are not hunted. Many are native. No natural law dictates that the victims are intrinsically more valuable than the perpetrators. The birding world is far from unanimous on this issue, and dissension arises from two very different considerations: On the one hand lies death and killing. Many birders regard killing as unacceptable as a management or research tool. Witness the unending rancor over scientific collecting. Deeper than this, however, run questions over the need for deliberate human intrusion into natural processes to benefit one species at the expense of another.

Surely there are times and places when humans must interfere, if only to negate our impacts. On the other hand, we cannot go messing with the gearbox of nature with utter abandon. Our knowledge and tools are too imperfect and our hubris is immense.

Let me propose some criteria that identify circumstances when it becomes necessary to resort to controlling one native species on behalf of another. Tell me what you think:

- the beneficiary of the control program must be a native species or native habitat in jeopardy;
- human interference must be the root cause of that jeopardy;
- strong evidence must indicate that the target of control is also an agent in the jeopardy and that the control program will be effective in achieving good outcome for the beneficiary;
- other options for reducing the jeopardy must be neither feasible nor effective;
- enough should be known about the proposed control action to allow a good estimate of its likely side effects, and these must be tolerable;
- best efforts must be underway to address the root source of the problem. For example, if the target of control is a predator that has increased in numbers because of human activity, then any control program should be matched by work to remove the factors that led to the artificial population growth.

What does this mean? Consider a proposal now under review for the Bureau of Land Management to help

Desert Tortoises through control of Common Ravens. The tortoise is in big trouble. Evidence suggests strongly that human activities are the root cause. Our land-abuse patterns in the desert are converting the area into a raven farm: People build feeding stations for ravens in the form of refuse dumps. Drivers leave sacrificial food gifts along the highways disguised as road-kills. Electric companies erect nesting platforms purported to be utility poles. The result has been a 15-fold increase in raven numbers in the desert haunts of the tortoise over the last 20 years alone. In places where once you would have been fortunate to see a raven, you now can gaze upon flocks of 1000 or more.

More ravens eat more tortoises . . . baby tortoises, in fact. Demographic evidence suggests that ravens reduce the numbers of tortoises entering the breeding population. Few babies hatched in a world with more ravens means even fewer tortoises.

The answer, it would seem, at least to the Bureau of Land Management, the California Department of Fish and Game, and the U.S. Fish and Wildlife Service, is to kill ravens. Indeed, that may be necessary, and this case would appear to fit many of the criteria I proposed above. There are fewer tortoises and their demise appears linked to people through ravens. But several things make me hesitate here before I would favor unleashing the full weight of state and federal agencies upon the ravens of southern California.

The tortoise is suffering from other problems not borne on ravens' wings. More than a few go SPLAT! under ORV wheels or the tires of 18-wheelers barreling along a proliferating network of roads; those missed move about in habitat ever more degraded by ORVs, construction projects, urbanization, and sheep grazing. Others disappear into poachers' bags. Some add that little bit of extra zest for plinkers grown tired of maiming immobile tin cans.

Run these other anti-turtle agents through the criteria above. Is there unequivocal evidence that controlling ravens will benefit the tortoise population? Not yet. True, fewer baby tortoises will disappear into raven gullets, but these other agents may be more telling. They, rather than the ravens, may be the factors driving tortoise population trends. We need hard ex-



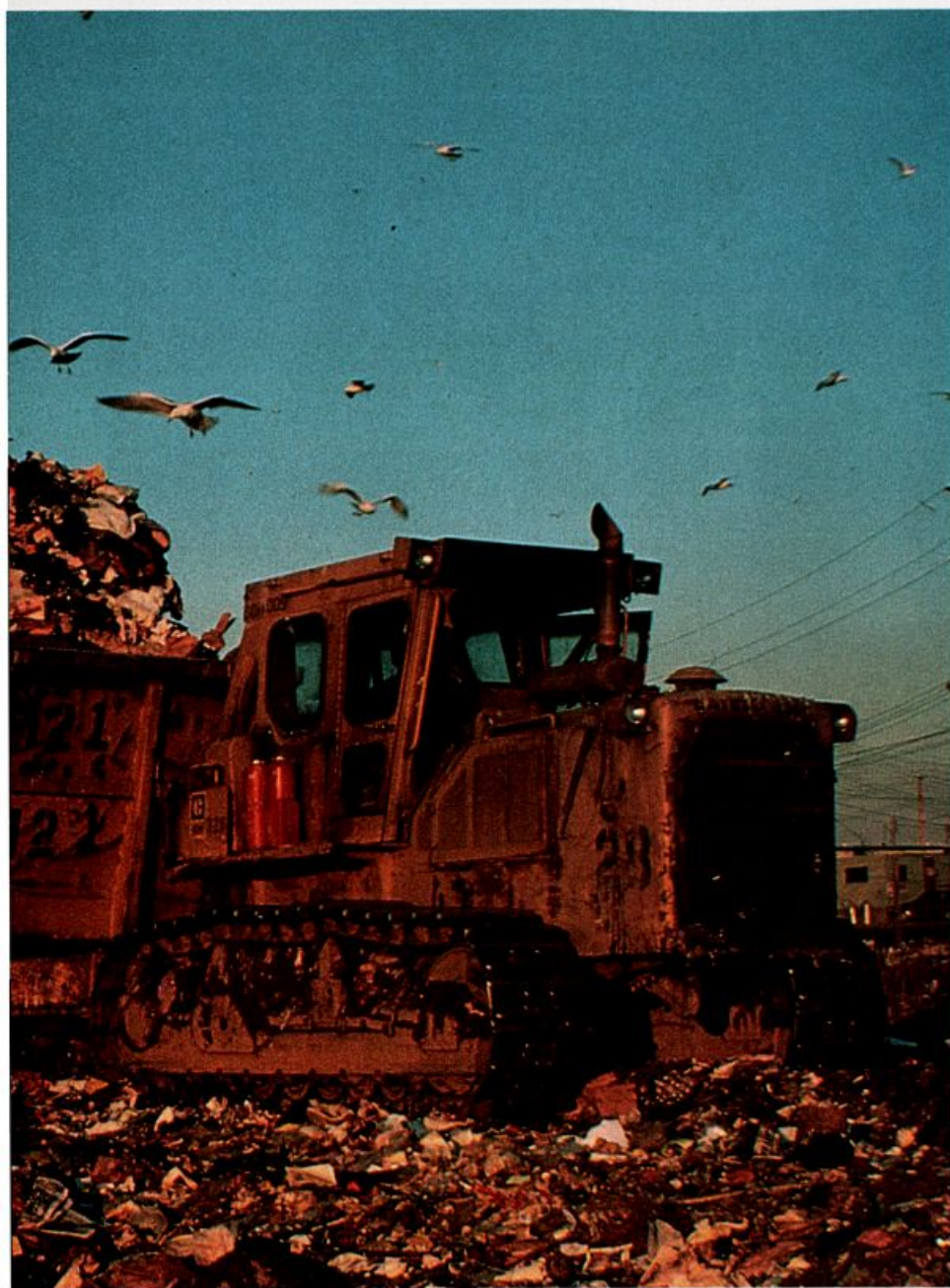
Photograph/A. Morris/VIREO/M17/13/067.

perimental confirmation of the hypothesis that raven control will increase the tortoise population.

What is being done about these problems? Are the agencies making their best efforts to minimize ORV damage, or to avoid grazing on critical habitat? For that matter, are they working to reduce the availability of garbage for ravens by encouraging, indeed requiring, local governments to deal properly with refuse disposal? The mere fact that the agencies have been unable to move the tortoise all the way through state and federal endangered species listing procedures

despite compelling biological evidence suggests that politics and economics are once again hampering wildlife conservation. Should ravens then take the fall?

Thus stands the case of ravens vs tortoise now, at least as I see it. What next? The experimental studies on raven control should be done as soon as possible. Based on the circumstantial evidence in hand, control would probably be beneficial for tortoises. The agencies should also demonstrate good faith and accomplishment on the other problem fronts. With progress in these areas, we, in turn, should



be realistic about what can actually be accomplished on the land-abuse problem in the desert in the service of desert tortoises. It is very likely that raven control will become an important tool in desert tortoise management.

I know that this argument is so compelling that 100 percent of the *American Birds* readership now agrees with me. Rational thinking, after all, has been remarkably efficient at settling religious differences since time immemorial.

Two trends underway now will heighten this debate as never before.

One, the unending rape of natural landscapes, is nothing new. Tom Lovejoy calls its result the "manscape" and the pace will become ever fiercer as humans usurp larger and larger fractions of the globe for their own ends. The other, global warming, will intensify the challenge to natural systems at a scale that is only now beginning to be sensed. Sensed, mind you, not "understood" or "anticipated." The science is too primitive and speculative at this stage for either of those latter verbs. But emotionally? Leave the room amidst ecologists who have just, for the first time, participated in

an assessment of what The Greenhouse means for the world's biota and you will have a foretaste of your first born's wake.

What will these two trends do in the debate over human intrusion? First, they will give rise to countless battlegrounds where the arguments can rage. Already some 100 species of the world's biota slip into extinction on a daily basis. Fortunately for those who want to avoid the issue, most take place unseen and unheard somewhere off in Rondonia. But with The Manscape, The Greenhouse, and their interaction, extinctions will pummel North America's biota as well. The question of whether, when, or how to intrude will become part of the daily agenda for conservation and for birding.

Secondly—and here my own biases surface—they will render moot the business of whether intrusion violates the "naturalness" of nature. Yes, natural processes will continue. The Greenhouse and The Manscape will not prevent changes in gene frequency in populations nor ebbs and flows in population numbers nor interactions among species. But they will so thoroughly distort how these processes play out—what really happens compared to what would have happened in their absence—that to eschew purposeful management would be a blatant and inexcusable cop-out... an act of grand self-delusion, a dash to hide behind Mother Nature's tattered and falling skirt. In this emerging world, the decision not to manage becomes just as conscious a management choice, with just as heavy an ethical burden, as a decision to favor terns over gulls, tortoises over ravens, or brackish over freshwater marsh. To pretend otherwise in the name of nature—to argue, for example, that it is better to let a species disappear with dignity than to work toward a human solution—in fact becomes worse than a self-indulgent cop-out. It consigns a significant fraction of the world's biota to extinction. No thank you.

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