

# Wildlife Management in America's National Parks: Preparing for the Next Century

*It is felt that ... the Park Service no longer knows what its purpose is nor that of the Park System it manages.*

Ronald Foresta, 1984

There seems to be a growing trend of discomfort with National Park Service (NPS) management of wildlife<sup>1</sup> among prominent professionals of the wildlife management genre. I say *seems to be* as there has long been a conflict between the “determinists”<sup>2</sup> and the “hands-off parkies.” The recent publication by Frederic Wagner et al. (1995), *Wildlife Policies in the U.S. National Parks*, may simply reflect the long-term conflict, but may also signal a steep upturn in the willingness of academics and wildlife professionals to criticize the NPS publicly. Future debates and forums on NPS wildlife management policies scheduled for 1997 and beyond will aid in determining the actual tenor within professional ranks.

In reality, the hands-off approach to wildlife management has only been in vogue since the late 1960s, and then only in the larger parks such as the System's icon Yellowstone National Park. Faced with growing public awareness and controversy over large-mammal population culling operations, and stimulated by new science documenting intrinsic, density-dependent population regulation factors in ungulate populations, NPS stopped culling elk (*Cervus elaphus*) and bison (*Bison bison*) in Yellowstone in 1968 and began a three-decade experiment in natural regulation. Elk and bison populations have risen steadily throughout the period in spite of

hunter harvest and aggressive control actions just outside the park boundaries. So the hands-off approach applies only to the lack of direct population control within park boundaries. Hunting, capture, and slaughter have been practiced in adjacent portions of the seasonal home ranges of Yellowstone ungulates.

Management of large migratory mammals varies in other national parks of the Rocky Mountains and Great Plains. At Glacier and Rocky Mountain National Parks and Dinosaur National Monument, for example, management of ungulates (elk in particular) closely follow the Yellowstone model. At Grand Teton National Park, however, a congress-

sionally mandated public elk hunt<sup>3</sup> is conducted within park boundaries. The general goal of Grand Teton elk management is to maintain a herd size compatible with the carrying-capacity-derived objective for the park's winter range and the U.S. Fish and Wildlife Service's National Elk Refuge just south of the park. Most of those elk which spend the summer in the park spend the winter in the refuge; it was established in 1912 to mitigate the loss of traditional elk winter range to agricultural development in Wyoming's Snake River Valley.

At Theodore Roosevelt, Wind Cave, and Badlands National Parks in the Dakotas, large ungulates are regularly herded into handling facilities and culled to maintain herd size compliant with carrying capacity of park ranges. Boundary fences surround Theodore Roosevelt and Wind Cave and portions of Badlands. Herd size targets for elk (Theodore Roosevelt and Wind Cave), bison (all three), and horses<sup>4</sup> (Theodore Roosevelt) are set and adjusted on the basis of regular range condition surveys.

Generally speaking, hunting is considered a non-conforming use of National Park System units. Only where expressly mandated in park enabling legislation (as in Grand Teton National Park) is hunting considered congruent with NPS policy. Hunting is allowed, and managed, in many National Park System units, including a number of National Seashores, National Monuments, National Recreation Areas, and Na-

tional Riverways. It is, perhaps, unfortunate that much of the perception of the public, and a growing number of wildlife professionals, regarding wildlife management in the national parks is based predominately on the Yellowstone paradigm. In fact, the NPS exercises a wide continuum of approaches to wildlife management, ranging from the hands-off natural regulation approach in Yellowstone, through the unhunted yet carefully manipulated ungulate populations described, to actual cropping through public hunting within the boundaries. Many programs are conducted in complete cooperation with local state game and fish agency personnel with NPS and state employees sharing hunting regulation enforcement responsibilities both in and outside park boundaries.

It is likely that if we examined NPS unit management programs for large mammals on the basis of a dozen or so criteria, we would find that there are probably no two exactly alike within NPS. We would probably see a small grouping of the largest parks near the Yellowstone end of the continuum, but there would be a variation among them involving some level of subsistence hunting and Native American traditional use. So, it is relatively clear to this writer that the Servicewide *Management Policies* (National Park Service 1988) simply reflect the wide range of wildlife management approaches required of NPS by legislation and statute. Only where not precluded by specific legislation (or general legislative language

deferring NPS management to state or other policies and statutes), do the NPS policies apply. And, even then, the Servicewide policies may be abrogated through due process.

It is clear, or it should be, that the history and evolution of the National Park System indicate no compelling direction by the president, the secretary of the Interior, or Congress to cut the National Park System units from common cloth. The *Management Policies*, and subsequent guidelines, do provide the common threads which bind the system together in a non-uniform, yet cohesive amalgam. And the Redwood National Park Act (16 U.S.C. 79a-79q [1988], 82 Stat. 931, Pub. L. 90-545), and its amendments, clearly prohibited derogation of the values for which park units were established *except* where expressly provided for by Congress. I would propose that my preface statement from Foresta (1984) reflects less what the Park Service knows, and more about the lack of knowledge of the National Park System by its most outspoken critics.

Clearly, the National Park System is not a mirror-image of the National Wildlife Refuge System charged with preservation and enhancement of specific trust species. Nor is it a collection of representative habitats of American biota replete with native biodiversity preservation mandates. The System does, by default, represent a wide range of native habitat types, but this is more a by-product of the political history of its growth than

a discretionary choice.<sup>5</sup> There is no pervasive NPS mission to include all representative samples of any published American wildlife habitat classification system, and, thereby, protect the entire American fauna. There is little bureaucracy in place to unify (or even coordinate) wildlife management approaches within and across NPS field areas, much less Servicewide. The NPS employs only a few professional<sup>6</sup> wildlife biologists and has no Servicewide organizational structure to support wildlife management professionalism, share information on advanced techniques and new science, and coordinate the many approaches to wildlife management seen throughout NPS.<sup>7</sup>

This situation probably reflects the opposite of Foresta's contention. The Park Service does know it is not a wildlife management agency and, in fact, it has no core profession.<sup>8</sup> The incredible variety of natural and cultural resources entrusted to the NPS, combined with its dual mission mandate for visitor enjoyment, ensures the interminable debate over organizational structure and priorities. Wildlife issues ebb and flow as reflected in the administrative history of NPS. George M. Wright was named chief of NPS's first Wildlife Division in 1933, following four years of pioneering work funded with his own personal wealth. The division barely outlasted Wright's unfortunate early demise in 1936. Various offices with the term "wildlife" in the title have come and gone since 1916. Most likely, NPS simply finds itself *between*

wildlife divisions in 1997.

So, what should NPS do to get a jump-start on sustainable wildlife management in the 21st century? First, we can agree that there will certainly be wildlife to manage. There is some threat to a wide variety of species from human economic and demographic development, but there is a much larger species complement that is steadily growing, acclimating to humans, and readily adapting to a plethora of altered states in and around American national park units. Some species occur at all-time-high population levels in a number of units. NPS's specific missions toward declining species<sup>9</sup> and encroaching aliens are insidious, but that discussion is beyond the scope of this paper. In considering general wildlife management direction for NPS, I will start with the recommendations from the "Future Directions" chapter from Wagner et al. (1995).

First, is the recommendation for more *explicit management goals*. The authors claim that NPS management policies and guidelines should begin with explicit, forceful statements of the important social values that the System serves and the associated, broad goals set to satisfy those values. As I pointed out earlier, the wide variety of specific legislative mandates for unit management actually preclude the development of explicit, forceful management objectives for all System units. The development of the *Management Policies* (National Park Service 1988) reflected a desire to characterize the variety of man-

dates and enlist default policies which would represent the lofty ideals of national park management, and which could be enforced if not precluded by unit-specific mandates. The type of guidance envisioned by Wagner et al. would require new Servicewide legislation establishing commonalities of purpose and direction. Many existing NPS units would never have been created had they been forced into the mold proposed by these authors. It is unlikely that either the Administration or Congress will feel compelled to frappé the National Park System units into clones of Ecosystem Oz anytime soon in the next century, if ever. Indeed, the variety of purpose and portent found in the units of the National Park System today are critical in the system's public and political support.

This is not to imply that better, more ecologically based management objectives should not be developed at the unit level. As park ecology unfolds through scientific investigation and experiment, more explicit objectives are possible and desirable. Evolution of Servicewide objectives cannot be expected to occur at the same rate and will require more science in many parks before widely applied generalizations will be politically acceptable.

Next, Wagner and his co-authors attacked goal setting at the park level. Although they reviewed no NPS general management plans (GMPs), they stressed the importance of extensive and open public involvement. And although they admitted they do not

have a good overall sense for the extent of NPS public involvement processes, they cited an obscure reference (Anunsen 1993) to document that public input may at times be tightly controlled and orchestrated. Certainly, NPS readers can attest to the usual achingly lengthy public involvement processes in which they have been involved regarding GMPs and National Environmental Policy Act (NEPA) compliance documents. Too bad for readers of *Wildlife Policies in the U.S. National Parks* that the authors did not thoroughly research the NPS planning process.

The authors continue by noting that goal setting should *not* be considered a purely scientific process and that park management goals should not be primarily "science-driven" unless that is the societal preference. This claim offers an interesting conflict in that the same authors later suggest that NPS needs far more park-specific, ecologically defined policies. The authors call for the creation of scientific advisory panels from the professional ecological community for purposes which would include:

Specifying the detailed, quantitative ecological characteristics for which park ecosystems would be managed. These characteristics are described to include the structure and function of whole ecosystems in parks where preservation of such systems was the adopted goal.

I cannot imagine a model of an entire ecosystem's structure and

function representing a reasonable management goal, replete with quantitative ecological characteristics. And even if it were possible to amass a reasonable facsimile of an ecosystem on paper (or hard drive), I find it unlikely that clear-cut intercession protocols could be developed for discrete ecosystem variables, across all trophic levels, which would be expected to yield predictable ecological conditions. Today's science cannot predict reliably the "natural variation" within a single trophic level on a long-term basis with no deterministic management at all! The best we can perhaps do is to manipulate a single ecological component or function and monitor carefully the presumed<sup>10</sup> effects on another limited set of ecosystem components and functions anthropogenically determined to be of high significance. Often it is impossible to separate significance to human values from significance to ecosystem integrity.

The authors go on to cite Brussard (1991) who recommended active management of national parks for biodiversity because it will do a better job of retaining a full complement of species and communities a century from now. But NPS policy does not define a full complement of species and communities as a static management objective for national parks. Instead, the policies (National Park Service 1988) require the NPS to protect natural environments evolving through natural processes minimally influenced by human actions.

Therefore, maximum biodiversity has never been a management goal for national park units. In fact, managing for biodiversity is fraught with technical as well as operational difficulties. For example, which aspects of biodiversity should be managed for? How about within-species genetic diversity? How far should a prudent steward go to introduce subspecies, races, varieties, etc., or enhance the process of speciation, to bolster that diversity, even though the transplanted variants have never been known to inhabit park ecosystems? Or, should we manage for species richness? Again, we ask the question of degree. If all native ecosystem components are present, do we dare go farther? And what if one or more natives<sup>11</sup> are extinct; do we fill their niches with experimental surrogates?

Wagner and his co-authors continue with a discussion of the *whys*, *whens*, and *hows* of management. Here it becomes clear what the real rub truly is. The authors are incensed with the traditional NPS concept of *naturalness* and its use as an icon in NPS wildlife management policy. And it is here that my own concerns over the years (Huff 1989) begin to resonate with a limited few of those expressed by the authors of *Wildlife Policies in the U.S. National Parks*. But there is a world of difference in our respective perceptions. The Wagner authors would have the NPS charge headlong into actively managing plants and animals in most, if not all, national parks to comply with societally generated objectives for the

ecosystem. I would simply ban the use of the term "natural" and all its derivatives from NPS policy, guidelines, and management plans. Yellowstone's "natural regulation" policy would become its "ecological regulation" policy and the concern for "naturalness" would be replaced with a concern for "ecological integrity." But we can't stop here because according to convention, ecological integrity refers to the presence of all native ecosystem components and functions (Norton 1992). Therefore, we have to contend with term "native." Nateness implies presence at some specified time in the past and, in NPS parlance, refers to the condition of being present *without* the deterministic actions of another specific ecosystem cohort, *Homo sapiens*. Early in the century, this latter concern seemed insignificant, since aboriginal Americans were deemed to have had insufficient technology to have influenced their faunal cohorts. Today, we have computer models that show how, under specific circumstances, a single species of predator may drive a prey species to extinction, or close enough to stimulate significant ecosystem effects. It logically follows that aboriginal humans could have had even greater influences on ecology of the continent well before European humans showed up. So we dump the term *native* and all its derivatives, too.

And we start over with a simpler concept. National parks are given the chance to start evolving with the species present through a reasonable

reference period (say a thousand years<sup>12</sup>) (Huff and Varley 1996), rather than a point in time prior to the influences of European humans. We do not have to claim this would represent a "natural" condition; only that it represents NPS management policy. Ecological evolutionary forces are then protected over time, with the exclusion, to the extent possible, of deterministic influences by all contemporary humans. The value to science would be enormous. Nowhere else in this country, and in few places in the world, is evolution of ecosystems without human intrusion being protected. How better to measure the influences of our actions elsewhere, than to have the closest thing humanly possible to an experimental control! And all we have to do is cast out a few antiquated terms which are mired in mysticism and pseudo-science. This new policy could, however, only be applied to the few *natural regulation* parks described earlier. Legislated *determinism* would preclude unfettered evolution in most NPS units.

In planning for national park wildlife management for the next century, we should begin with an important axiom. We must avoid a tendency toward *ex post facto* evaluations of historic policies. In managing early Yellowstone, for example, the NPS first eliminated the ecological influences of Native Americans on the landscape. Then we (the NPS) eliminated the impacts of recently arrived Euroamericans, the market hunters. Next we eliminated the "bad ani-

mals"—the predators. Then we controlled populations of the "good animals"—the herbivores. Then we stopped controlling populations of all native animals. We later began adding back the species we earlier eliminated. Now we're partially controlling some of those herbivores, again, at the park boundaries. The point here is that societal values evolve and policies for management of public resources follow suit. Even if we had every datum we could imagine needing for a given management decision, that decision will still have a finite life. Conclusiveness of our supporting science increases the longevity of our decisions, but it does not make them immortal. Therefore, assuming earlier policies which have since been countermanded were *wrong* is a fallacy. They were right *then* based on contemporary values and science. They are, likewise, wrong *now* primarily because of the evolution of American values.

Which way will national park wildlife management trend in the next century? The protectionists and determinists are strong, but opposing forces in today's constituency. I'm guessing each will have victories in specific cases. As for the past, we've most often done the right things as measured against contemporary values, but we've often used the wrong words to describe our decision processes. The concept of "naturalness" is under strong attack and will probably not hold up long into the 21st century. I suggest we start with some common-sense revisions to our Ser-

vicewide and park-specific policies, clearly iterate our purposes (and they can, and should, be different in different units), build the scientific basis for those purposes, monitor our results, adjust our management approaches appropriately, continue to professionalize<sup>13</sup> our staff, provide some level of Servicewide coordination and support for wildlife management,<sup>14</sup> and then we should be relatively immune from most criticism—excepting, of course, critiques of a political, religious, or philosoph-

ical nature; or from scientists who interpret data differently than we do; or from other land managers skeptical or envious of our resources, mission, or popularity; or from zealous “environmentalists” or animal protectionists; or from commodity interests wishing to get their hands on park resources; or from park concessionaires wishing to enhance their profitability; or from park neighbors who may always perceive an impact from park management policies. Shouldn’t be *tooooo* difficult, eh?

*[The opinions expressed in this paper are the author’s own and do not represent the official position of the National Park Service.]*

### References

- Anunsen, C.S. 1993. Deception in the Olympics. *Animals’ Agenda*, January-February, 25-27, 42.
- Brussard, P.F. 1991. The role of ecology in biological conservation. *Ecological Applications*, 1:6-12.
- Foresta, R.A. 1984. *America’s National Parks and their Keepers*. Washington, D.C.: Resources for the Future.
- Huff, D.E. 1989. Introduction to the role and effect of fire in the Greater Yellowstone. *The George Wright Forum* 6(3), 12-16.
- Huff, D.E., and J.D. Varley. 1996. Natural regulation revisited: the case for Yellowstone’s northern range. Paper presented at the 81st Annual Meeting of the Ecological Society of America, Providence, Rhode Island.
- National Park Service. 1988. *Management Policies*. Washington, D.C.: U.S. Department of the Interior, National Park Service.
- Norton, B. 1992. A new paradigm for environmental management. Pp. 23-41 in *Ecosystem Health*, R. Costanza et al. (eds.). Washington, D.C.: Island Press.
- Wagner, F.H., R. Foresta, R.B. Gill, D.R. McCullough, M.R. Pelton, W.F. Porter, and H. Salwasser. 1995. *Wildlife Policies in the U.S. National Parks*. Washington, D.C.: Island Press.



- <sup>1</sup> In this paper, the discussion of "wildlife" will generally be limited to the native ungulates, most of which are considered "game" species in the states in which they are found in free-ranging populations.
- <sup>2</sup> Those land/resource managers who manage toward deterministic (e.g. explicit, exclusive, and quantitative) resource conditions.
- <sup>3</sup> The hunt is actually referred to as a population reduction action and applicants from the public are randomly selected and sworn in as temporary park rangers for the purpose of killing elk.
- <sup>4</sup> Horses are, obviously, non-native biota but their management is mandated in legislation creating the park.
- <sup>5</sup> The result of which is a fairly widespread distribution of units throughout the congressional districts.
- <sup>6</sup> That is, professionally trained (i.e., "degreed") in wildlife management or ecology, certified by The Wildlife Society, active in extra-curricular professional fora or societies or both, and published in the wide array of scientific, technical, and popular literature addressing the profession of wildlife management.
- <sup>7</sup> As it does for water resources, air quality, and geologic resources.
- <sup>8</sup> I define "core profession" as one which has a career ladder from the lowest-ranking professional position in the bureau to the bureau's chief executive (e.g., "Director"). Examples include wildlife/fisheries biology for the U.S. Fish and Wildlife Service, range conservation for the Bureau of Land Management, hydrology for the Bureau of Reclamation, geology for the pre-Biological Resource Division" (alias "National Biological Service") U.S. Geological Survey, forestry for the U.S. Forest Service, and veterinary medicine for the Animal and Plant Health Inspection Service.
- <sup>9</sup> Including federal and state "listed" species and candidates.
- <sup>10</sup> Cause-and-effect relationships will be obscured by our inability to establish "controls" in real-world situations.
- <sup>11</sup> As defined in the biota of some acceptable "reference period."
- <sup>12</sup> Which seems reasonable since we have good data on the biota through that period for many units and could develop it for many others.
- <sup>13</sup> Including "parity" with other agencies in the professional wildlife management area. For example, the U.S. Forest Service employs GM-15 "Directors of Fish and Wildlife" in each regional office, GS-12/13 wildlife biologists in almost every national forest, and still generally defers wildlife management on USFS lands to state game and fish agencies.
- <sup>14</sup> Which could include technical support in the areas of wildlife capture and immobilization, wildlife diseases, population dynamics modeling, carrying capacity determination, census techniques, habitat management, population enhancement and control, species reintroductions, Servicewide wildlife data management, interagency coordination, management of public hunting programs, policy development and application, and legal advice including liaison with Regional and Washington solicitors.

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