MEN AND MAMMALS IN JOINT OCCUPATION OF NATIONAL PARKS

by

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Joint occupation of national parks by animal and human populations is prescribed by the organic laws which define national parks. Maintenance of wild life in the primitive state is also inherent in the national park concept. The conclusion is undeniable that failure to maintain the natural status of national parks fauna in spite of the presence of large numbers of visitors would also be failure of the whole national parks idea.

Further, since the feasibility of preserving the aggregate of primitive wild life on unit areas anywhere in the United States has become the center of debate between constructive idealists and vociferous defeatists, the national parks, because they represent the problem in its most complex form, have become the test case.

Today, when so much attention centers on conservation based on land classification and the development of management practices designed to restore each class of land to its fullest wild life productivity, it will be worth while to review the problems which have developed in maintaining the fauna of the national parks in a primi-

tive state, with particular reference to those that are peculiar to them as against other kinds of reservations or wilderness preserves.

Though no categorical distinctions can be made between types of problems since there are interactions throughout and indirect influences hardly guessed at as yet, still it is evident that park faunal problems arise from one or more of three basic causes. These are: first, adverse early influences which operated unchecked in the pre-park period, and continued into the early formative period; second, the failure of parks as independent biotic units by virtue of boundary and size limitations; and third, the injection of man and his activities into the native animal environments.

The first two are common to all areas wherein it is desired to maintain the primitive. Moreover, they have this in common, that we may look forward hopefully to the correction in large measure of the problems which they developed. Consider, for example, some of the type problems under these two causes. As the results of adverse earlier influences, there are problems in the reintroduction of extirpated species, restoration of species reduced to the danger point, rehabilitation of depleted habitats, and management of species become abnormally abundant because of removal of their normal controls. As the results of the failure of the parks to be self-contained, self-walled biological units, typical maladjustments are lack of winter range, ebb-flow of animals that are blacklisted outside the park areas, invasion by exotics, dilution of native species through hybridization,

and exposure of natives to the diseases and influences of alien faunas. All the problems mentioned and others referable to the same two causes are recognizable as being common to primitive areas generally. Ideally one can hope that actual cures will be effected as these problems are analyzed and effective treatment evolved and applied.

The third class of problems, however — those arising out of joint occupation of the areas by men and mammals — have the dubious distinction of being the incurables. In the instance of adverse earlier influences the cause of disorder was removed when the area became effectively a national park. It only remains to undo now the damage that was done then. Where the park is an inadequate biotic unit, addition of the proper areas and revamping of boundaries to follow natural faunal barriers will bring permanent removal of the basic difficulty. Progress on this front has been slow, but the adoption of a sound nation-wide wild life restoration plan based on planned land use should give it a great impetus.

The presence of people, and in fact of as many people as wish to come to the park, is a condition which cannot be altered; therefore the problems arising therefrom are to be dealt with as something permanent. They demand the development of a compensation technique in wild life administration which will be put into effect and act continuously. Moreover, as park travel is steadily increasing, the problems are being constantly intensified, and it logically follows that the palliative measures including the restrictions willingly imposed on man by himself must also increase.

Though white man is in one sense part of the whole natural environment, one in the aggregate of faunal and floral species constituting the biota of the park, just as are the Indians who came via the Aleutians, and the grasses whose seeds were borne across the ocean, there are two things which set him apart even from other recent arrivals. White man's impact upon his environment is tremendous as compared to that of all other living forms. He is as much like them as cancerous growth is like normal growth and as destructive in effect. The second thing which sets him apart and which is antidote to the first, is his unique ability to appreciate his effect on his environment. He thus becomes capable of self-imposed restrictions to preserve other species against himself. Admittedly, his object is a selfish one, just as it is when he chooses to destroy other species to use them for food, but it is a higher, more altruistic, selfishness. It is selfishness for the benefit of all individuals of his own kind and their descendants after them. And incidentally it is a selfishness which reacts beneficially upon the animals over which he holds power of destruction.

The whole national park idea is a manifestation of this second attribute of man, dependent upon his utilization of his environment to his own advantage but in contradistinction to his instinctively normal utilization of land. Within the national parks, man's estimate of the greatest values to be obtained for himself from the sum total of their native resources, dictates that he shall occupy them in such a way as to cause the minimum of modification from the aspect they presented when he first saw them.

Man, like any other exotic, cannot intrude upon an area without causing some displacement and modification of the preexistent or primitive state, but the degree of change which he causes may be very great or relatively little. If a scientific study is made to determine how to keep the disturbances to a minimum, satisfactory results will be secured.

Let us examine those problems already know to be traceable to joint occupancy and indicate still others which may be anticipated. What has been done to study them and provide for their solution and what is planned by the National Park Service for the future?

First come those problems rooted in conflict between the more fundamental needs of men and animals in the parks. They are essentially by-products of occupation of common habitats.

In the early park period, the livestock concept of wild life administration prevailed. Predators were controlled, and rangers were permitted to trap fur-bearers in winter to eke out inadequate salaries. This is not to be condemned either, for it was consistent with the national parks concept in that early stage of its development. Moreover, at that time, many of the grazing animals were so depleted that first attention had to be given to saving the small breeding remnants. Some of them, such as buffalo, elk, and antelope, were so close to extinction that any action to save them was justifiable. Now that these forms are out of immediate danger with many nuclei established, it is easy to forget that this was not always so. Then, one spoke of campaigning against carnivores as though they were something devilish, just as one did of Huns in the World War and with as little reason. In fact, it

was only a few years ago that the principle of equal protection for all species was established.

Even from their incipiency the parks recognized that the animal lif would have to be protected against certain normal aggressions of civilisation. Visitors must not molest the animals. Visitors must not bring dogs or at the very least, they must be kept on leash. Domestic stock must not be pastured in the park by residents, though this was never considered to apply to riding horses.

Such simple precautions seemed enough when parks travel was light and we still labored under the illusion that there were great hidden wildernesses in the west. Later the almost complete decimation of primitive wild life elsewhere greatly enhanced the importance of the parks as last refuges at the same time that the influx of thousands of visitors raised the question as to whether the park wild life could stand the pressure. For the first time we began to glimpse the multitude of ways in which the animal and human elements conflicted.

Realization of the problem meant the elimination of the needless harm to animal life which was attendant upon poisoning around barns, burning of meadows, and so on. Maladjustments of this type which are in the accidental class are now corrected as fast as apprehended. They are not the permanent problems in joint occupation.

Once all species are given full protection insofar as the right to live their life cycles unmolested is concerned, and park visitors are at the same time enjoined against taking any step as individuals to

protect themselves against the animals, problems in animal harmfulness to man arise. Few species are actually dangerous to human life, but some are injurious to property, others to man's special interest in certain natural features of the park, while still others are inimical to his comfort and esthetic senses.

The rattlesnake is, of course, a traditional enemy but nevertheless a greatly overestimated one. The proper practice is to destroy rattlesnakes when encountered at human concentration points but to permit them to go unmolested elsewhere.

Coyotes, rabbits, and squirrels, may act as carriers of diseases communicable to man. Epidemic outbreaks of such diseases constitute emergencies abrogating all regular rules and regulations and calling for heroic but temporary and specifically applied local treatment.

Among mammals, the various species of bears can be considered as being physically dangerous. Because visitors cannot carry firearms, this danger is real, and if the park administration protects the bears against the visitors it must protect the visitor against the bears. For this reason, individual bears of bad character are destroyed. But the bear problem is due very nearly one hundred per cent to the abnormally intimate contacts which human beings have sought to establish with the bears and not to the innate ferocity in bear nature. The subject, therefore, is properly referable to that category of problems involved in the manner of presentation of the visitors to the wild life and will be treated later.

Mammal damage to property is of small significance. Since the offenders are not to be destroyed, recourse must be had to isolating

the property from the animals. The real difficulty here comes in inculcating the basic administrative policies so deeply that recourse to this kind of treatment will always be first thought, replacing the instinctive reaction to kill. For example, in Mt. McKinley National Park, considerable damage is sustained from the porcupine gnawing on buildings. The immediate proposal was local control by shooting. But such an objectionable course was unnecessary. Moreover, since the porcupines of this region migrate locally, serious reduction of the park porcupine population could result from prolonged application of such treatment. At present, the offending porcupines are trapped and moved elsewhere. In all likelihood, a permanent solution to this problem will be found through cooperation with the Branch of Plans and Design of the Park Service in development of an acceptable porcupine-proofing. This will become standard for all structures where such damage occurs.

Cases in which animals prejudice the comfort of the visitor or abuse his esthetic senses demand the development of similar technique. Where skunks insisted on sharing man's houses with him, they were once trapped and drowned. Now they are trapped and removed to remote sections. It is a safe prediction that skunk-proof basements will be standard in the future.

Where animals prejudice man's special interests in the natural features of the parks, the involvements are greater. The scene of man's special interests is out in the park proper and more often than not in the most sacred areas, whereas the troubles discussed above are usually limited to the development areas, which are exceptions from the remainder of the park area in nearly every way.

If a park has been created for the express purpose of preserving an outstanding archaeological object, the welfare of that object, including both protection against destruction and presentation in a primitive setting, transcends all other administrative obligations, including that of wild life protection. Thus, if a hard-hoofed species is hastening the destruction of a ruin, or a rodent is destroying vegetation which is an important part of the ruin picture, there can be no question of tolerating the damage, and the offender must be extirpated from the immediate locality if no other and less objectionable solution can be found. Fencing, for example, would intrude an artificial element in the ruin scene and therefore would be eliminated as a possibility.

The inroad of fish-eating mammals upon game fish is detrimental to the special interests of one group of visitors. Nor can we be oblivious to the perfectly understandable hostility of the fish culturist whose business it is to keep the park streams well-stocked. But the logic of the arguments that the fisherman is a privileged character in a national park wherein nothing else but fish can be taken; that, in so doing, he is depriving the fish-eaters of their food supply; and that he must restore fish to the streams and lakes for the benefit of these creatures as well as himself, has been so forcefully demonstrated, that there is no longer any question of controlling species predatory upon fish. For purposes of practical administration, exceptions have to be made in the case of individual animals doing unusual damage around rearing ponds or hatcheries.

Finally, since man is superior, and endowed with every advantage, it would be miserable admission of defeat if he could not find ways of solving these simple problems of animal injury to man, without resorting to campaigns of destruction which ruin the primitive and impoverish the aggregate of natural phenomena which, in reality, is the park.

In turning to a consideration of maladjustments of the reverse order, those involved in the percussions of civilization upon the wild mammals both by direct effect and indirectly by disturbance of environments, we come to grips with the key problem in national parks administration.

Consider first the unavoidable factor of actual physical displacement. All construction problems today must conform to the master plans which specifically limit developments to certain excepted areas. The guiding principle is that all the roads and buildings necessary to the accommodation of both permanent employees and transients shall be compacted into the smallest possible space. Though this technique is in its infancy, rapid progress is being made. Approved practice today calls for erection of apartment-type dwellings to secure economy of ground space.

For better control and to accord with the most advanced scientific thought on the subject, the research reserves program developed by the Ecological Society of America has been adapted to national parks use under a plan proposed by the Wild Life Division of the Park Service. Under this scheme the whole of the park becomes a primitive area with the exception of certain fixed and well defined areas to which developments must be limited. The excepted areas include right of way for roads

and site for camps, hotels, and utility groups. The primitive area which is the park proper must remain untouched except for fish culture, trail development, and insect and fire control practices. For scientific study and to serve as control experiments, specific areas within the primitive area may be set aside as permanent or temporary research areas. These would be barred to trail development and fish planting. To make this program satisfactorily effective, the park should be surrounded by a buffer strip of the maximum width possible, in order to isolate it from external influences. Success of this measure must depend on whether adjacent lands are in public or private ownership and on the degree of cooperation which can be secured.

Adoption of this plan will mean reduction of the displacement factor to the practical minimum. In order that neither enjoyment and use of the park nor the primitive status of its wild life shall be jeopardized, men must live on less and less ground and do more and more journeying forth to see the wild life. There is ever-increasing restriction on the camping privilege. Before long, no one will camp in the park except in a developed camp site in which the location of car stall, fireplace, table, and tent have all been predetermined by the Branch of Plans and Design. Though such a high degree of restriction upon freedom is naturally abhorrent, the parks are our most precious bits of wilderness and must be safeguarded. The vast areas outside the parks provide ample space for those who would camp as they please.

In addition to the impingement by large numbers of people upon the faunal habitats, causing a contraction in the total animal populations, there are certain correlary maladjustments which develop. In all of the

national parks every bit of available range forage is needed for native game. Both company and government saddle horses have been given the range needed by the park wild animals for so long that the practice is rooted in tradition and is hard to change. Nor can it ever be eliminated entirely. Nevertheless, a great improvement has been effected by maintaining careful jurisdiction and exercising good range management. Riding horses maintained in the park for visitor use are not brought in until the season starts and are taken out of the park as soon as it is over. Numbers are limited to the demand. And what is more beneficial than anything else, the horses are herded high upon the summer range instead of being allowed to impoverish the critical winter game range.

A few species of mammals which thrive on civilization, notably coyote and ground squirrel, tend to increase and spread in the wake of development and, by very virtue of their aggressive characteristics, to impinge upon native forms whose niches they preempt. In such cases, control is clearly indicated. In parks such as Glacier and Yellowstone, however, the coyote, while it is undoubtedly more abundant than formerly, may perform a useful function as a salutary control on herbivorous forms in place of the mountain lion and wolf which formerly filled that role.

Finally, among the problems of joint occupation, there is the large and complex category of problems involved in the manner of presentation of wild life to the visitor. That there are such problems is due indeed to the very perversion of what should be the relationship between the animals and the visitors. The visitor, instead of seeing animals disjoined from their natural habits and drawn out of their natural haunts to be presented spectacularly to him on as intimate terms as possible

and with the minimum expenditure of energy on his part, should in fact be presented to the animals, so as to see them at home behaving primitively in their primitive environments.

Probably the most typical and certainly the best known problem resulting from the manner of presentation is that of bears in Yellowstone. To show how this problem was analyzed and what progress has been made toward its solution; the following excepts are quoted from "Fauna of the National Parks of the United States", published in May, 1932, by the National Park Service.

> "The manner of presentation of bears in this and other parks has been to feed large quantities of garbage in arenas, there being one or more of these according to the distribution of human population centers. This has brought about unprecedented concentration of bears in small areas in Yellowstone. What are some of the adverse or possible adverse effects upon the bears resulting from this manner of presentation?
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> (a) The intimate association of many bears at one time on the feeding grounds must facilitate the spread of diseases or parasites which may be endemic in bears in Yellowstone, or of any diseases which may be introduced among them.
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> (b) The garbage itself, including the remains of domesticated animals, may introduce parasites.
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> (c) The rich concentrates in the garbage are an unnatural food for bears; and if feeding of them is continued for many bear generations, injurious physiological changes in the make-up of the bears are exceedingly likely to occur.
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> (d) The garbage season is coincident with the tourist season and not with the bear requirements. As a result of this uneven distribution of food, there is likely to be a scarcity of feed at the critical times. If it is true that because of this unnatural condition the females go into hibernation in a poor condition, there is a genuine possibility that the cubs born in the winter months will suffer until eventually degeneration of the race will take place as a result.

(e) Inasmuch as the garbage is concentrated in areas a few yards square, the old bears are able to dominate the situation at the expense of the younger animals. It is possible, on the other hand, that the young animals learn only the feeding habits of their elders; and not being trained to rustle their natural foods, become the small scrawny hold-up bears so common on the Yellowstone roads.

(f) The garbage pits must cause a desertion of the niche formerly occupied by the bears in the summer time, thus further disturbing normal biotic relationships in the park.

(g) Garbage feeding attracts the bears to the vicinities of the food stores of campers and encourages a lack of fear of man. The bears offend man, who has the whip hand, so that the bears are bound to be the sufferers in the end.

(h) Bears appear at their worst on the garbage platforms, so that their characters, in the minds of the visitors, suffer as well as does very probably their physical well-being from this manner of presentation.

"To conclude, it might be said that this manner of presentation of bears is very likely to be to the ultimate detriment of the bears. Certainly it is responsible for much of the injury to man."

In the two seasons which have elapsed since this analysis of the Yellowstone bear problem, certain corrective steps have been taken, and there is measurable improvement. Garbage feeding has been eliminated except for the Canyon and Old Faithful bear shows. Back-door feeding of bears and feeding of bears by visitors has been greatly reduced. Approximately one hundred troublesome black bears and a very few bad-actor grizzlies have been destroyed. The number of bear complaints reported in the 1933 season was better than 60 per cent less than for the preceding year. For 1934 an allotment for bear-proof refuse containers and food safes has been secured for Fishing Bridge campground. If this experiment proves successful, all campgrounds will be bear-proofed as fast as funds can be made available.

Not only with bears in Yellowstone but wherever any animal has been garbage-fed, hand-fed, petted, and tamed, the results have been detrimental both to the animal and to man in the park. Moreover such practices have no national parks value, since the city zoo can satisfy this sort of human craving far more successfully. If we do not present park animals wild and in their natural background, we do not present a wild life picture of national parks significance.

In arranging for the presentation of the visitor to wild life it must be remembered that birds and mammals in the immediate vicinities of roads and development areas are of relatively greater value because they are the ones which are most apt to be seen. Road-side clean-up tends to make the part of the park seen by visitors sterile of wild life. Therefore it should be kept to the absolute minimum. Office orders urging caution to preserve wild life values in conduct of Emergency Conservation programs have been issued, and close supervision is exercised. Still it is difficult successfully to combat human zeal in making the woods as tidy as possible.

The general recommendations calculated to secure the best values to the visitor from park wild life and at the same time to avoid destruction of the primitive status of that wild life are that the wilderness be permitted to come up as close as possible to human concentration areas, that park animals be not pauperized or tamed, and that ingenuity be exercised to introduce visitors to the animals' environments without their presence having adverse effects.

Recapitulation

This country has now been explored and occupied from coast to coast and from Candian to Mexican boundaries. The haphazard development and cropping of natural resources has proved so enormously wasteful and unproductive of benefit to our citizenry that the future national welfare in this respect has been seriously threatened.

Under a reclassification of lands to secure the maximum benefit from each type, wild life will find some place everywhere. The percentage value accorded to wild life may be very small in some cases, but it will be considerable for most lands and on some, such as marsh, desert, and rugged mountain types, wild life values will outrank all others.

Conservation thus is seen not to be an end in itself or a creed over which men fight according to personal prejudice, but a means for securing the maximum cropping of natural resources without destruction of the productive capital. The forms of cropping include the realization of sporting, economic, esthetic, and scientific values.

Certain areas in public ownership will always be dedicated to the several needs of preserving wild life in the wilderness condition. Because the modifying influences exerted by human populations would ordinarily prevent the realization of this objective, administrative practices must be developed to correct and prevent modification of the original natural conditions.

The national parks are one among the various types of areas which are designated for the preservation of the primitive. Because the parks are set aside both for preservation of natural conditions and for use by the

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people at la , they have not only to cope with problems resulting fr adverse influences and problems of adverse external influences, but they are confronted also with the problems resulting from joint occupation.

These problems are of such magnitude that some observers have concluded that only the childish idealist, pathetically blind to the practical obstacles, would attempt to accomplish the thing. There are others who believe the effort is warranted. Much of man's genuine progress is dependent upon the degree to which he is capable of this sort of control. If we destroy nature blindly, it is a boomerang which will be our undoing.

Though he has harnessed much of nature, man is still nature's child, and all his strength and nourishment is drawn at the source from nature. No matter how tall a building he erects, he can never live above or outside of the soil in which his being is rooted. When civilizations become too destructive of the nature which nourishes them, they perish. Consecration to the task of adjusting ourselves to natural environment so that we secure the best values from nature without destroying it, is not useless idealism; it is good hygiene for civilization.

In this lies the true portent of this national parks effort. Fifty years from now we shall still be wrestling with the problems of joint occupation of national parks by men and animals, but it is reasonable to predict that we shall have mastered some of the simplest adjustments. It is far better to pursue such a course though success be but partial than to relax in despair and allow the destructive forces to operate unchecked.

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