

*The George Wright*  
**FORUM**

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*The George Wright Society*

Dedicated to the Protection, Preservation and Management  
of Cultural and Natural Parks and Reserves  
Through Research and Education

The George Wright Society, Inc. is chartered in the State of Delaware, in accordance with the laws of the State of Delaware and of The United States of America, as a nonprofit educational and scientific organization dedicated to the protection, preservation and management of cultural and natural parks and reserves through research and education.

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**The George Wright FORUM**

## Digressions

Science does not always advance in an orderly fashion. Looking back over the past few decades I recall the near excitement attending the discovery of the orderliness in which old-field succession progressed from bare plowed earth to climax forest and the animal communities associated with each stage; and the marvelous revelations in the first half of this century—things like Cowles work on the Lake Michigan dunes through Adams, Gleason, Cooper, Harshberger, Oosting, Grinnell, Dansereau, Leopold, Curtis, Daubenmire, and well, all the others. Such works have been instrumental in the thinking and doing in the field of park management....albeit park management has sometimes been dragged kicking and screaming into some of the 'new' technologies and philosophies. Well, I digress.

In the 'modern' era of plant and animal sciences—beginning, say, in the 1950s—I also recall the 'to-do' over 'molecular biology.' There was a time when it was professionally unsafe to be a 'natural historian' (that old stuff!). Whole departments in colleges and universities turned into labs where every creature in sight was ground, centrifuged and chromatographed, treated statistically and reported upon. Natural historians fled to departments of geography, or retired, or, well, disappeared. Then came the age of 'the computer.' Every datum in sight was jammed into these mindless machines and the output was labelled 'truth.' Never mind the fact that all the data in sight were inadequate to define that truth. Molecular biology and computer technology, and their uses, have matured far beyond that point—and the results have become exceedingly important to us—but the loss of much work in the field of natural history has been suffered as a result. Whether scientific faddism—and the resultant sources of funding—largely has been responsible for this or not now seems moot. Except for one point: funding still dries up for important works because 'you've been doing that for years...we already know about it' or 'it's turn-of-the-century stuff' or well, you know what I mean. The bottom line seems to be that many studies aren't 'sexy' enough for some of the decisionmakers. Long-term studies especially come to mind. 'You've been on that study for years—what can you possibly learn in another year?' Etc. The answer: lots! If park management really means to manage in such a way and by such means as will leave the natural scene intact for future generations, then that management can't do its job on the basis of quick-and-dirty one-time studies; even short-term cycles are missed, and the long-term cycles aren't even comprehended; to say nothing of the spin-offs. When one is involved for many years studying wolves at Isle Royale or terns at Dry Tortugas or sequoias in the Sierras, there's a whole lot more than just wolves and terns and sequoias that comes to light: everything from associated species, habitats, and habits to long-term climatic cycle effects also come to light—culminating in more information, knowledge and wisdom than ever could have been gathered by short-term quick-and-dirties. But, again, I digress.

Sometime back, the 'park naturalist' somehow virtually disappeared—the Russ Graters, the Natt Dodges, the Art Stupkas, et al. Instead, 'communicators' began 'communicating.' **How** something was communicated became much more important than **what** was communicated. I was appalled one summer at a park, whose name I won't mention, to find the season's interpretive program replete with hugging trees and conversing with wildflowers, apparently under some guise of 'loving and understanding nature.' It didn't wash for long—thank God—but still some parks seem deficient in solid, accurate, meaningful information, knowledge and wisdom emanating from their interpretive programs. Could it be that superficiality begets even more superficiality—that lack of information being presented begets even more lack of interest in the 'truth' of what our planet really is all about? As an old park naturalist (50s-60s) I early learned that park visitors can be real sponges—eager to learn...**provided** it's true **and** it makes sense as presented **and** it isn't presented in a manner that speaks down to them. The challenge, it seems to me, is to challenge the intellect. People really like that!

Recently, Barry Sussman of the Washington Post penned an article titled "They don't know, and don't care." It's about things political mostly, but it leads to only one conclusion: if you don't know about it, you don't care—if you don't care about it, you have no desire to know about it. Whatever the topic. Tragically, this is symptomatic of so much of our population these days. Perhaps again I'm digressing, but some thoughts presented in this issue of *Forum* touch upon these subjects, and they are important. And we who do 'the park thing' **can** do something about the 'they don't know and don't care' syndrome. By getting and giving solid, factual information! All the time!

*Bob Linn, Hancock, MI*



Excerpted from:  
**Animal Life in the Yosemite**

—  
**An Account of the Mammals, Birds, Reptiles,  
and Amphibians in a Cross-Section of the Sierra  
Nevada**

—  
**Joseph Grinnell and Tracy Irwin Storer**

(For two reasons we are reprinting a small portion of a book published in 1924 by the University of California Press. First, the senior author, Joseph Grinnell, was an early ecologist who enormously influenced our thinking about park natural resources and research needs. Second, it seems to us that the direction of science during the past several decades has served to reduce the kind of descriptive natural history represented here, probably to our disadvantage. Eds.)

## Preface

The national parks of America render as their most important service a full free opportunity to all who will to find in them a complete recreation, physical, mental, esthetic. In performing this service the animal life existing within their borders constitutes a valuable asset. For the best recreative forces in nature are those which serve most quickly to call into play latent or seldom used faculties of mind and body whose exercise tends to restore to normal balance the human mechanism that has been disturbed by special or artificial conditions of living. Foremost among these forces are the living things that move and utter sounds, exhibit color and changing form, and by these qualities readily attract and fix our interest. To seek acquaintance with those primal objects of interest is to know the joy of vigorous muscular activity; better still, it is to realize the possession of the generally neglected senses of far-seeing and far-hearing, and to invite esthetic appeal of the highest type and an intellectual stimulus of infinite resource.

Of the thousands who each year visit the Yosemite Valley and its environs, a certain proportion are already interested in natural history; and anyone who leaves the region without gathering some definite knowledge of its natural history has failed to get adequate gain from his opportunities. The geology, topography, and botany of the Yosemite have been studied with some care; and there are instructive and stimulating manuals available dealing with these subjects. But heretofore only a few brief accounts have appeared in print concerning the bird life of the region, and practically nothing has been made available regarding its mammals, reptiles, and amphibians. It was in an effort to supply this deficiency that a survey of the vertebrate natural history of the Yosemite region was undertaken by the California Museum of Vertebrate Zoology. The present volume deals with the results of that survey.

The principal objects in view in undertaking the survey were: To find out what species of mammals, birds, reptiles, and amphibians exist, or have within modern times existed, in the circumscribed area selected for study; to learn as much as possible concerning the local distribution of each of these species, and to map out the general life areas within the region; to learn as much as time permitted of the food relations, the breeding habits, and the behavior, individually, of each of the species; and finally to put all this information on permanent record, in a form accessible to, and generally assimilable by, the public, both lay and scientific.

In attempting the achievement of this last aim the authors have brought together their materials with every precaution to insure accuracy of fact and correctness of inference. No sacrifice of precision has been made consciously with the end merely of affording 'attractive reading.' At the same time, technical terms, where the same ideas could be expressed in words familiar to every reader of fair education, have been avoided. Ideally, we have tried to present our science, perfectly good science, in straightforward, readable form.

## The Interrelations of Living Things

That forests afford the means of existence for a great number of animals, with reference to both species and individuals, is a trite statement which no one is likely to question. We would offer, however—albeit with some caution—a second statement: Forests depend, for their maintenance in the condition in which we observe them in this age of the world, upon the activities, severally and combined, of the animals which inhabit them.

Beginning at the root of the matter, in a double sense, as we have emphasized beyond in the chapter on the pocket gophers, mammals which burrow are of importance to forests. The pocket gophers, the ground squirrels, the moles and the badgers, are natural cultivators of the soil (see p. 142), and it is, in considerable degree, the result of their presence down through long series of years that the ground has been rendered suitable for the growth of grasses and herbs, and even of bushes and trees, particularly in their seedling stages. A host of insects, also, which live in the ground at least part of their lives, contribute to rendering the soil more productive of vegetable life.

Vegetable materials, leaves, twigs and trunks of trees as well, contribute to soil accretion by reason of their being torn to pieces by animals (see p. 322), their particles scattered by animals, and these finally overlaid by the earth brought up by animals from deeper substrata. The animals which figure conspicuously in this process are the woodpeckers, chickadees, and nuthatches, the tree squirrels, chipmunks, and porcupines, the burrowing beetles, the termites, and the ants, and then the burrowing and burying mammals already referred to. This process of incorporating humus into the soil, accomplished in large measure by animals, is of direct and lasting importance to the forests.

We do not make any claim that *all* animal life is directly beneficial to the forests. For many insects may be *seen* to feed upon the foliage, the bark, and even the live wood of individual trees, and in so doing such insects shorten the lives of these trees, or even sometimes kill them outright within a single season. It is obvious that a sudden overabundance of such destructive insects would bring serious injury to the forests.

But observation has led us to recognize, in certain groups of *birds*, natural checks to undue increase of forest-infesting insects. Insects of one category inhabit the bark of a tree or the layers of wood immediately beneath; others pursue their existence among the smaller twigs; still others live amid the foliage of the tree. In all these cases the substance of the tree is levied upon by the insects for food, and if levied upon unduly, the trees suffer commensurately. But, as counteracting factors, we find corresponding categories of birds, each specially equipped to make use of one of these categories of insects. The woodpeckers, nuthatches, and creepers search the tree trunks and larger limbs; the chickadees comb the finer twigs; while the kinglets and warblers go over the foliage leaf by leaf. The great value of the bird to the tree comes when the harmful insects have

begun to multiply abnormally; for birds are well known to turn from other food sources and concentrate upon the one suddenly offering in generous measure.

It is to the interest of the forest at large that a reserve nucleus of birds be maintained constantly, as a form of insurance, to be ready at just such a critical time. Incursions of insects from neighboring areas, as well as eruptions of endemic species, have probably occurred again and again from remote times. In other words, as we see the situation, it is an advantage to the forest that a continual moderate supply of insects be maintained for the support of a standing army of insectivorous birds, which army will turn its attention to whatever insect plague happens suddenly to manifest itself.

We would claim, then, a nice interdependence, an adjustment, by which the insect and the bird, the bird and the tree, the tree and the insect, all are, under average circumstances, mutually benefited. Such a balance is to be found in the primeval forest, where thoroughly 'natural' conditions obtain as a result of long ages of evolution on the part of all the animate things there touching upon one another's lives. These relations may, of course, be entirely upset where man has interfered, directly or indirectly; as, for instance, when he brings in insects or plants alien to the original fauna and flora. Then an entirely new program, one of readjustment, begins.

After a good deal of study, and contemplation of the modes of life of various kinds of animals, naturalists have come to recognize as essential *three* factors which seem inseparably bound up with the successful existence of any one species of vertebrate animal. These factors are: (1) presence of safe breeding places, adapted to the varying needs of the animal; in other words, depending upon the inherent powers of construction, defense, and concealment in the species concerned. (2) Presence of places of temporary refuge for individuals, during daytime or night-time, or while foraging, when hard pressed by predatory enemies, again correlated with the inherent powers of defense and concealment of the species involved. (3) Kind of food supply afforded, with regard, of course, to the inherent structural powers in the animal concerned to make it available.

To say all this a bit more simply, not alone food is necessary to the bird life or the mammal life in our forests, but also safe places for rearing young, and places of refuge when needed, for the grown-up individuals themselves. Referring again to the relationships borne between certain insects, birds, and trees: The White-headed Woodpecker (see p. 320) is a species which does practically all of its foraging on trees which are living, gleaning from them a variety of bark-inhabiting insects. But the White-headed Woodpecker lacks an effective equipment for digging into *hard* wood. It must have dead and *decaying* tree trunks in which to excavate its nesting holes. If, by any means, the standing *dead* trees in the forests were all removed at one time, the White-headed Woodpecker could not continue to exist past the present generation, because no broods could be reared according to the inherent habits and structural limitations of the species. Within a woodpecker generation, the forests would be deprived of the

beneficent presence of this bird. The same, we believe, is true of certain nuthatches and of the chickadees—industrious gleaners of insect life from living trees. They must have dead tree trunks in which to establish nesting and roosting places, safe for and accessible to birds of their limited powers of construction and defense.

We would go so far, even, as to urge that *down* timber, fallen and decaying logs, are essential factors in upholding the balance of animal life in forests. Certain kinds of chipmunks, and rats and mice of various kinds, find only in fallen logs homes adapted for their particular ways of living. And these chipmunks and other rodents have to do with seed scattering, with seed planting, and with humus building, again directly affecting the interests of the chaparral, of the young trees, and even of the older trees of the forest.

It is true that there are some kinds of birds and mammals which at times directly injure trees to an appreciable extent. The birds of the genus of woodpeckers called sapsuckers (see p. 327) drain the vitality of the trees they attack. An overabundance of these birds would bring disaster to the forest at large. An overabundance, likewise, of tree squirrels (see pp. 202, 208) would probably play havoc with certain trees, beyond the powers of these trees to meet the crisis.

Just as in the case of the leaf-eating insects and of the kinglets in the arboreal foliage, these birds and mammals of the sapsucker and tree-squirrel category are kept in check by other, predatory birds and mammals. In the Sierran woods are Great Gray Owls and Spotted Owls, Cooper Hawks, Martens, and Weasels, levying upon the vertebrate life about them, and each equipped by size, degree of alertness, or time of foraging, to make use of some certain sort of prey. The longer we study the problem the clearer it becomes that in the natural forests, which, happily, are being preserved to us in our National Parks, a finely adjusted interrelation exists, amounting to a mutual interdependence, by which all the animal and plant species are within them able to pursue their careers down through time successfully.

The opportunity here to moralize is tempting. If the above course of reasoning be well founded, then, to realize, esthetically and scientifically, the greatest benefit to ourselves from the plant and animal life in Yosemite Park, its original balance must be maintained. No trees, whether living or dead, should be cut down beyond what it may be necessary to remove in building roads or for practical elimination of danger, locally, from fire. Dead trees are in many respects as useful in the plan of nature as living ones, and should be just as rigorously conserved. When they fall, it should be only through the natural processes of decay. The brilliant-hued woodpeckers that render effective service in protecting the living trees from recurrent scourges of destructive insects, in other words, in keeping up the healthy tone of the forest, depend in part on the dead and even to fallen trees for their livelihood.

No more undergrowth should be destroyed anywhere in the Park than is absolutely necessary for specific purposes. To many birds and mammals, thickets are protective havens which their enemies find it difficult or impossible to penetrate. Moreover, the majority of the



chaparral plants are berry-producing and give sustenance to mountain quail, to wild pigeons, to robins and thrushes, to chipmunks and squirrels, and this, too, at the most critical times of the year when other foods for these animals are scarce or wanting. The removal of any of these elements would inevitably reduce the native complement of animal life. Nor do we approve, as a rule, of the destruction of carnivorous animals—hawks, owls, foxes, coyotes, fur-bearers in general—within the Park. Each species occupies a niche of its own, where normally it carries on its existence in perfect harmony on the whole with the larger scheme of living nature.

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### **Grizzly Bear. *Ursus henshawi* Merriam**

The history of the Grizzly Bear in the Yosemite region and indeed throughout California is evidently a closed chapter in the book of nature. In the 'days of '49' numbers of the big fellows roamed over the hills and valleys of California, and the Yosemite region doubtless had its full quota of them. But the presence of the Grizzlies was incompatible with the interests of the white man, and so they were killed off rapidly, until now it seems likely that they are entirely gone. So sudden was their extermination that no complete specimens were secured to be preserved in our museums. And reliable accounts, published or in manuscript, of the California grizzlies are meager at best.

The word Yosemite<sup>3</sup> is derived from a word in the tribal dialect of the southern Miwok Indians who inhabited the Valley when it was discovered by white men. This word, Uzumati, or Hzhumati, means grizzly bear, a full-grown animal rather than a cub. The use of this name in association with the Valley might be taken as an indication that Grizzly Bears originally inhabited the Yosemite Valley. But we have no precise evidence to show that such was the case. Early visitors to the Yosemite often mention 'grizzlies' and 'bears' in their narratives, but with an ambiguity that leaves the reader uncertain as to whether a veritable Grizzly was encountered anywhere in the Valley proper.

The names Bear Valley, Bear Creek, Big Grizzly Flat, and Little Grizzly attest the former wide occurrence of Grizzly Bears in the foothill district of the region.

The Grizzly Bears as a group (including several species and races) are quite distinct from the Black Bears. The size of adults was generally much larger, though the species which occurred in the Yosemite region was one of the smaller of the grizzlies. No weights or detailed measurements of locally captured grizzlies are preserved. The 'nose to tail' measurement of 'nearly 10 feet' given by its captor for the Wellman specimen referred to below, applied to a skin as pegged out fresh. It is well known that considerable stretching results from such procedure, and that when the skin is relaxed and tanned it shrinks somewhat. The length of the Wellman grizzly skin is now 7.5 feet and its width at the middle is 5 feet. Judging from the dimensions of bears before skinning, in known cases, as compared with those of

the tanned skins measured subsequently, the Wellman bear in the flesh probably measured between 6.5 and 7 feet in length tip of nose to tip of tail. The Washburn skin mentioned later measures 6 feet 7 inches in length, somewhat smaller; and the living animal was therefore probably close to 6 feet long.

The foreclaws of the Grizzly are much less sharply curved and somewhat longer than those of the Black Bear; this is an absolutely distinctive character. The longest claws on the Wellman skin are 3 inches (measuring the chord of the claw from tip to upper base), while the middle foreclaw of a large California-taken Black Bear is only 2 inches in the same dimension. The track of an old Grizzly, either front or hind foot, was much larger than that of a Black Bear. Wellman's figures, 10 by 13 inches, and McLean's, 9 by 17 inches (even allowing for considerable sliding of the foot, especially in the latter case) are 50 per cent larger in each dimension than the track of a good-sized Black Bear. These measurements of course refer to the hind foot, which is decidedly longer than the forefoot. The latter (if the 'wrist' does not touch) leaves an imprint that is more nearly square in outline. In coloration the Grizzly was dark brown, and some individuals had grayish or whitish ends to the longer guard-hairs on the back, which gave rise to the name 'silver-tip.'

The Grizzly differed from the Black Bear in habits as well as in structure. It was, particularly in the case of the Henshaw Grizzly, a frequenter of chaparral (and hence essentially an inhabitant of the foothill districts), and it never (or rarely) climbed trees. Its food, as with the Black Bear, was quite varied, including berries, fruits, and insects, as well as flesh; but the Grizzly worked much more havoc among large game, and in later years, stock, than does its smaller relative.

During our work in the western part of the Yosemite section we questioned numerous old residents concerning the former occurrence of Grizzly Bears, but rarely obtained definite information. Mr. J. B. Varain, of Pleasant Valley (=Varain), told us that there were no Grizzlies there when he arrived in 1867, but that they were then still to be found in the territory to the east. The various gold rushes to Tioga and Mammoth, together with the running of sheep and other stock in the region, served to clear the Yosemite country of its Grizzlies at a relatively early date. The occurrence of the one taken in 1887, by Wellman, was by that year considered an unusual event.

We were unable to get track of even a fragment of a specimen of the Grizzly in the narrow section which we worked across the Sierras; but since our field work was completed, there have come to light two skins of Grizzlies killed elsewhere within the present boundaries of Yosemite National Park. Both of these skins are now in the Museum of Vertebrate Zoology of the University of California. One of these bears (obtained from Mrs. John S. Washburn) is the last known to have been killed in the region. It was shot 'about 1895' at Crescent Lake, which lies some ten miles air-line east of Wawona at an altitude of 8500 feet.

It is possible that a few individuals persisted in the same region until a considerably later date. This surmise is strengthened by the

following account. Mr. John L. McLean and his son Donald have told us that during the fall and winter months from 1908 until 1911 a very large bear lived on Bullion Mountain. The tracks, which were examined on two or more occasions in two successive years, 'were 9 by 17 inches (or a little more) by actual measurement.' The animal had long claws, as shown by the tracks. The bear had five separate trails leading up the side of the mountain from the heavy chaparral (composed of *Adenostoma* and scrub or 'vine' oak) on the low slopes, to the black and blue oaks on the top. The dung indicated that the bear was living principally upon acorns. There were wild hogs on the mountain and these may have been an attraction to the big bear. The smaller (Black) bears seemingly had little or nothing to do with the big fellow, avoiding his trails and staying off in another cañon. A trap was once set for the big bear, and caught him; but he pulled loose 'at one jump.' Finally a party of men with dogs got after the big bear and it 'left the country,' without being injured, and was not seen again. Small bears are still present in the region.

The circumstances surrounding the killing of the 'Wellman bear' have been set down at considerable length in a letter written by one of the principals, Mr. Robert S. Wellman, under date of April 20, 1918. This letter is now on file at the Museum of Vertebrate Zoology, and from it we take the following.

Mr. Wellman's headquarters were, at that time, at Buck Camp, some 16 miles east of Wawona, near the South Fork of the Merced River. On the evening of October 17, 1887, at the head of a small valley about a mile away from the camp, he discovered the carcass of a cow on which bears had already commenced to feed. A search of the vicinity disclosed the presence of a female Black Bear and three cubs.

The next morning Mr. Wellman visited the place again and found that during the night a larger bear had come and dragged the carcass several yards from where it first lay. Being certain that this new arrival was a veritable Grizzly he rode over to the camp of his friend Jim Duncan,<sup>4</sup> now long deceased, and got him to come over to help in the hunt. The two men built a scaffold, or platform, 10 feet above the ground and some 60 feet from the dead cow. And on this platform watch was kept for the succeeding three nights. One or more black bears and a coyote came to feed, but it was not until the third night that the big bear put in its appearance again. When it did, it happened that three small bears were at the carcass; but these quickly quit the vicinity when the large bear appeared. Finally, the Grizzly caught sight of the scaffold, and made toward it. The two men fired simultaneously and the bear fell to earth with a series of 'bawls,' evidently wounded. The men did not come down until daylight, when the animal was found in some bushes and killed by a shot behind the ear.

The skin of this bear was sold by Mr. Wellman to the artist, Thomas Hill, and, through the latter's son-in-law, was procured in 1918 for the University of California.

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3 For the circumstances surrounding the choice of the name consult L. H. Bunnell, *Discovery of the Yosemite*; for discussion of the meaning of the word see paper by A. L. Kroeber, *California Place Names of Indian Origin* (Univ. Calif. Publ. Am. Arch. Ethn., vol. 12 [1916], p. 68).

4 This is in all probability the same Duncan mentioned by John Muir in the chapter on "The Animals of the Yosemite" in his book, *Our National Parks* (see Bibliography, p. 667). Muir relates that Duncan, who had quite a reputation locally as a bear hunter, had a cabin on the shore of Crescent Lake. In nine years he had killed no less than 49 bears [probably both Black and Grizzly]. He kept count of his killings by "notches cut on one of the timbers of his cabin." Crescent Lake is but a short distance from Buck Camp, and Duncan was doubtless living there in 1887 when Wellman went to get his assistance. □

## Grizzly Country \*

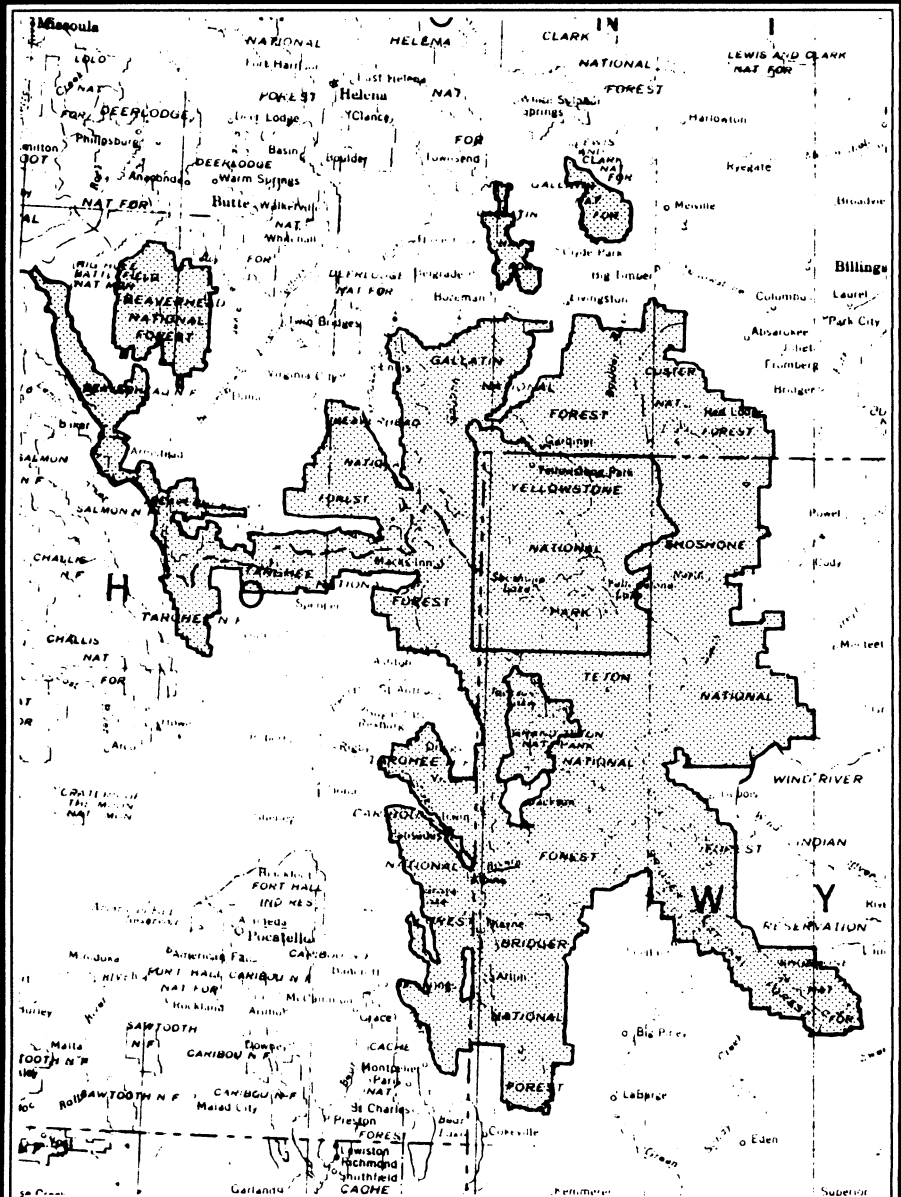
*Theodore W. Sudia*

The grizzly bear, (*Ursus arctos* v. *horribilis*), already listed on the Threatened Species list in the contiguous 48 states, is close to being eliminated from the Yellowstone region of the United States. After more than ten years of research the conclusion of Knight and Eberhard (*Ecology* 66(2): 323-334, 1985) is that without decisive action the grizzly will disappear from the Yellowstone and Grand Teton National Parks and the surrounding National Forests. The research of Knight and Eberhard points to this eradication if as few as two or three bears are killed a year. Whether the grizzly population continues to decline, levels off or increases may depend upon as little as one grizzly bear death a year.

The grizzly is a fairly long-lived animal, whose age in the wild may reach upwards of 25 years. Females characteristically do not begin to give birth to cubs until their 6th or 7th year, and then may have up to three cubs (average 2.2). At any time a mature female may have one to three cubs of the same season with her. At about age two the cubs leave their mothers and begin life on their own. The boar leads a solitary life except for the rut. The sow has cubs about every three years and keeps the company of her most recent cubs.

In nature the grizzly bear is without peer and is at the apex of the animal kingdom in North America. When provoked, the ferocity of the grizzly bear is legendary. Because of their weight (boars upwards of 700 pounds, sows 350 to 400 pounds) and size (a boar may stand 6 feet on its back feet and reach 12 feet), and the lethality of their claws and jaws, the bear is the most formidable animal on the North American Continent. Only grizzly cubs are subject to predation, then mostly from adult boar grizzlies. The grizzly is omnivorous—its diet ranges from bulbs, roots, berries and pine nuts to a variety of animals up to and including elk, living or dead. Since the females are most likely to display belligerent behavior defending their cubs, they are apt to be preferentially killed. Preferentially killing a sow with cubs results in the death of more than one animal, since the cubs cannot survive without her.

Andy Russell, in his book "Grizzly Country," describes grizzlies in the wild, as shy, intelligent and playful. They can beat a ground squirrel back to its hole, bring down elk, strip berries off a bough or crack pinyon nuts and delicately extract the nut meats. The young clown around, and in their play make slides on grassy slopes, taking



## Proposed Grizzly Country

The shaded area—Grizzly Country—consists of: Yellowstone and Grand Teton national parks, and Beaverhead, Galatin, Targhee, Caribou, Bridger, Teton, Shoshone and Custer national forests, located in the states of Idaho, Montana and Wyoming.

turns to slide. They can leap into the air and they can climb trees. They are agile and fast with enormous endurance. They move with the grace of ballet dancers. Radio tracking of grizzlies in the Yellowstone area reveals an amazing pattern of movement, over all kinds of terrain—high mountains, rivers, plains and forest. A bear may range over 400 to 500 square miles of territory in a week. National Park rangers who moved bears as a part of the early bear management program were surprised to discover the same bear back a day later, making a 75-mile cross country trip in 24 hours.

In pre-Columbian time, the grizzly ranged over most of the North American Continent. The grizzly bear has close relatives in the Mexican grizzly bear, the Kodiak bear of Alaska, and the European brown bear. The grizzly bear (*Ursus arctos v. horribilis*) is the paramount symbol of the North American wilderness.

Man is the only enemy of the grizzly bear. Whether one, two or three bears a year are killed and the grizzly perishes in the Yellowstone area is a land manager's decision. The principal land manager in the Yellowstone area is the United States. It is ironic that this magnificent creature has come to this desperate pass in a sanctuary whose enabling legislation states '**No animal nor bird shall be harmed.**' To save the bears, the killing must stop.

### **Specific action should be taken to save the grizzly bear**

1. The Congress should enact legislation designating Yellowstone and Grand Teton National Parks together with the contiguous National Forests (Beaverhead, Galatin, Targhee, Caribou, Bridger, Teton, Shoshone, and Custer National Forests) **Grizzly Country**. The law should specify that the grizzly bear has the same rights and protection in **Grizzly Country** that cattle have in 'Open Range.'

2. All roads leading into **Grizzly Country** should be prominently posted and travelers should be warned to take proper precautions.

3. Killing a grizzly bear in **Grizzly Country** should carry a fine of \$100,000 and imprisonment or both. (The fine for killing a beached whale in Australia is \$100,000. The fine was imposed after the Australian Fish and Wildlife Service killed 150 beached whales over the protests of citizens who claimed they could have saved the whales.) One-half of the fine money should be paid as a reward for information leading to the conviction of the person or persons killing grizzly bears in **Grizzly Country**. The legislation establishing **Grizzly Country** should be considered a supplement to the Endangered Species Act.

4. Setting of bait stations in **Grizzly Country** should be construed to be bait stations for the grizzly bear no matter for which animal the bait station was intended. The fine for establishing bait

stations should be \$50,000, one-half of which should be paid as a reward for information leading to a conviction. Fines or prison terms or both should be imposed.

5. Owners of grizzly bear parts should be required to register their property with the U.S. Fish and Wildlife Service. Grizzly bear parts in commerce, without proper registration papers should be presumed to be contraband and possession should carry a fine of \$25,000 or imprisonment or both, with half the fine going as a reward for information leading to conviction of illegal possession.

6. Claims of killing grizzly bears in self-defense should be heard by a special 'Board of Inquiry' convened by the Federal District Attorney to make a finding and recommendation for indictment.

7. All garbage dumps in **Grizzly Country** should be closed and no dumping of garbage should be permitted. Feeding the bears in any way should be unlawful. Fines and imprisonment should be imposed for willfully maintaining garbage dumps or feeding the bears. After suitable notice, continued disregard for regulations should result in fines of \$5,000/day until the dumping is stopped and the situation cleared up.

8. Permits for the grazing of livestock in **Grizzly Country** should be issued with the proviso that livestock owners assume the risks associated with grizzly bears and other predators in **Grizzly Country**. No tort claims for losses of livestock to predators in **Grizzly Country** should be recognized by the courts. The use of sheep protection dogs— such as the Hungarian Komondor—should be encouraged as a non-lethal bear deterrent.

9. All residents and permittees in **Grizzly Country** should receive intensive training and education about the grizzly bear, and the technology of bearproofing homes, cabins, camping equipment (hardsided permitted only), and the handling of food and edible garbage. Federal agencies permitting camping and other activities in which food is brought onto Federal land should promulgate regulations for the proper handling, preparation, storage and disposal of food and should impose fines of not less than \$100 for first infractions and fines of \$500 for repeated infractions of the regulations.

10. Hunting in **Grizzly Country** should be allowed everywhere the law permits hunting. Hunting camps should be strictly regulated with respect to the handling of food, garbage and offal so as to not attract grizzly bears. Camps in violation of the regulations should be fined \$5,000/day until the situation is remedied.

11. All claims for tort for personal injury or death, or property damage should be heard by the local Federal District Court.

12. The state and local governments having land contiguous with the Federal lands in **Grizzly Country** should be invited to participate in **Grizzly Country** by designating lands to be included in it and proposing regulations for it. The Federal legislation described in 1 (above) should apply to lands so designated.

13. A fund should be established from grizzly bear fines and from entrance and use fees for all of the Federal lands comprising **Grizzly Country** for the payment of torts or rewards. This fund should also support research on grizzly bears and other predators of **Grizzly Country** on a continuing basis. The fund should be administered by an interagency group representing all government entities having land in **Grizzly Country**.

14. All law enforcement officers whose agencies are participants in **Grizzly Country** shall have the same law enforcement authority and it should apply throughout **Grizzly Country**.

15. The residents of **Grizzly Country** and those who visit it must come to realize that they are in a very special place....**true wilderness**....and that they and their fellow citizens have made a conscious decision that the grizzly bear in the Yellowstone area is worth preserving and that come what may, life in **Grizzly Country** will adapt itself to that end so that the grizzly bear (*Ursus arctos v. horribilus*) will not perish from this place.

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\* see also the third reviewed item in the next article (page 15) for a discussion involving the role of state participation in National Park Resource preservation

*Theodore W. Sudia* is Chief Scientist of the U.S. National Park Service in Washington, DC. □

## **The National Park Service in Law Reviews and Law Journals: A Fourth Update**

***Thomas W. Lucke***

In 1981, when I first started producing these brief annotated bibliographies for The George Wright *FORUM*, I was dismayed by the fact that very few people were involved in the question of how law, legislative histories and court cases impacted on the operation of the National Park Service. However, over the intervening years, I have seen a gradual change. Discussions involving the legal issues of the NPS are beginning to appear more and more in the legal periodical literature. Special events such as a training course on Natural



Resources Law being given to the twenty-three Natural Resources Management Trainees at Clemson University in March of 1986 and a Seminar on 'External Development Affecting the National Parks: Preserving the Best Idea We Ever Had' being conducted by the Natural Resources Law Center in September of 1986 are occurring more and more frequently. In short, the law is beginning to receive the attention it deserves as the basis for management, planning and operation of the National Park System. The purpose of this article is to update managers and planners as to what new legal periodical literature is available to them.

***Environmental Law*** (Vol. 16, No. 2, Winter 1986, pp. 207-254) contains an article entitled 'Can Indians Hunt in National Parks? Determinable Indian Treaty Rights and United States v. Hicks' by H. Barry Holt. The recent arrest and conviction of two members of the Quinault Indian Tribe for killing elk within Olympic National Park raised questions about the nature and extent of Indian treaty rights and the Federal government's policy toward these treaty rights. This article analyzes determinable Indian treaty rights and the government's traditional construction of those rights. The author argues that government interpretations are based on convenience, and are contrary to the canons of treaty construction and previous judicial decisions. Mr. Holt concludes that the Hicks defendants either have a treaty right to hunt in Olympic National Park or they deserve compensation for a taking of that property right.

***Ecology Law Quarterly*** (Vol. 12, No. 4, 1985, pp. 747-778) contains 'Morne Trois Pitons National Park in Dominica: A Case Study in Park Establishment in the Developing World' by R. Michael Wright. The article details the long and painful process leading to the establishment of a national park on the Caribbean island of Dominica. The author suggests that park creation in less developed countries most often takes place when the government is convinced that creating a national park is in its own best interests. Thus, the primary task for a park proponent is to highlight the benefits of park establishment and to show the particular government that these benefits outweigh any alternative uses of the park site and its resources.

***Land and Water Law Review*** (Vol. XXI, No. 2, 1986, pp. 397-416) contains an article entitled 'State Participation in Federal Policy Making for the Yellowstone Ecosystem: A Meaningful Solution or Business as Usual?' by Richard Schneebeck. Using Yellowstone National Park and the grizzly bear issue as an example, the author delves into the question of whether individual states can play an effective role in protecting parks and their resources from adverse external development. After analyzing Wyoming legislation, he concludes that current state legislation is an ineffective legal solution to the dangers facing the grizzly bear and Yellowstone National Park. He goes on to state: 'Finally, management of the grizzly bear and the Yellowstone region require a national response in which local participation is only one ingredient.....Local participation is necessary in deciding how to protect grizzly bear. Local interests

should not, however, dictate national policy, nor should they be used as a pretext to ignore the threats to the Yellowstone region."

*Journal of Energy Law and Policy* (Vol. 7, No. 1, 1986, pp. 35-94) contains "Protecting National Park System Buffer Zones: Existing, Proposed and Suggested Authority" by John W. Hiscock. Mr. Hiscock gives a good overview of the parks threat issue, analyzes existing legislation, and proposes a model law for use by Congress in preparing future Park Protection legislation.

Also on the park protection issue is a Ph.D. dissertation from the Political Science Department at Colorado State University by John Freemuth. The 274 page dissertation is entitled *The Politics of External Threats: Visibility, Mining and the National Parks* (Summer, 1986). Using the Tar Sands issue in southern Utah and visibility questions under the Clean Air Act as case examples, Dr. Freemuth indicates that the natural resources policy of the administration in power, support from park policy specialists, and the role of resource oriented professionals will be vital to the resolution of the threats issue.

Another very interesting article on the park protection issue centers around the question of how to protect units of the National Trail System from adverse peripheral development. It is "The National Trails System Act and the Use of Protective Federal Zoning" by John S. Davis in *The Harvard Environmental Law Review* (Vol. 10, No. 1, 1986, pp. 189-255). Professor Davis uses the Appalachian Trail as an example to review techniques to protect the various resources and visitor experiences on these long narrow strips of land. He places particular emphasis on the concept of Federal protective zoning.

Those interested in Water Rights on Park System lands should read "Wyoming's Experience with Federal Non-Indian Reserved Rights: The Big Horn Adjudication" by Katherine Lamere Mead (pp. 433-453) and "Federal Reserved Water Rights in National Forest Wilderness Areas" by Nicholas Vassallo (pp. 381-396) in *Land and Water Law Review* (Vol. XXI, No. 2, 1986). The former is an analysis of the water rights adjudication process that involved a portion of Yellowstone National Park and the latter is a critique of Judge Kane's ruling that the establishment by Congress of a Wilderness Area also creates a Federal Reserved Water Right.

"The National Park Service Organic Act Prohibits Turning the Doorstep of Canyonlands National Park Into a Nuclear Wasteland" by Julie A. Bryan appears in the *Journal of Energy Law and Policy* (Vol. 7, No. 1, pp. 95-121). This article develops arguments against the proposed Department of Energy's nuclear waste repository sites at Davis and Lavendar Canyons near Canyonlands National Park. The same issue contains "Mountain Bicycles on Federal Lands: Over the River and Through Which Woods?" by Scott Havlick (pp. 123-144), which analyzes the rules and regulations of various Federal agencies, including the National Park Service, governing the use of mountain bikes. Mr. Havlick proposes strategies to limit any uses which could cause environmental damage.

"Clark v. Community for Creative Non-Violence: First Amend-

ment Safeguards—Their Sum is Less Than Their Parts' by James B. Putney appeared in the *University of Miami Law Review* (Vol. 39, No. 5, September 1985, pp. 997-1015). The article discusses the recent litigation over NPS regulations concerning camping that were used to prevent sleeping in the tent cities erected on the Mall and in Lafayette Park in Washington, DC.

An interesting perspective on cultural resources preservation is in "Cultural Property Laws in India and Japan" by C. Franklin Sayre in *UCLA Law Review* (Vol. 33, No. 2, February 1986, pp. 851-890). The efforts, successes as well as failures, of these two countries to protect their broad range of cultural heritage are described and evaluated.

Another article on what some countries are doing is 'A Systematic Method of Public Use Zoning of the Great Barrier Reef Marine Park, Australia' by K. D. Cocks, in *Coastal Zone Management Journal* (Vol. 12, No. 4, 1984, pp. 359-383). The article deals with the development of guidelines for making zoning decisions in a park and the use of a computer-aided technique to create a scheme for evaluating the zoning against those guidelines.

'Second-Class Sites: National Monuments and the Growth of the National Park System' by Hal Rothman appeared in *Environmental Review* (Spring 1986, pp. 45-56). In this article Mr. Rothman gives a brief overview of how the National Park Service has employed the Antiquities Act to create National Monuments. He argues that past NPS practices resulted in 'the denigration of national monuments' and that they become 'second-class sites.'

Two interesting articles on fire management reached my desk at about the same time last year. They were 'Uncle Sam and Forest Fires: His Rights and Responsibilities' by Norman J. Wiener in *Environmental Law* (Vol. 15, No. 3, Spring 1985, pp. 623-644) and 'Natural Fire Management in National Parks' by David J. Parsons and David M. Graber in *Environmental Management* (Vol. 10, No. 1, January 1986, pp. 21-24). The latter speaks to fire management in ecological terms with an eye toward natural processes while completely ignoring the legal liabilities and responsibilities emphasized in the former. Any manager who is preparing a Fire Management Plan would do well to read both articles to insure that both aspects of fire management are properly addressed.

As many decisions concerning the NPS, both within the agency and in courts deciding issues about the Service, are based on science and scientific evidence, one final work should be cited. It is Katherine Phelps Kitchell's MS dissertation entitled *A Needs Assessment-Based Review of the National Park Service Science Program in the Rocky Mountain Region*\* (Utah State University, 1985, 152 pp.). It is a good overview of how the NPS Science program does, and in some cases does not, work to provide the scientific data needed in the courtrooms.

As in the past, I would like to remind the reader that the above-cited pieces of literature do not necessarily reflect the official position of the U.S. National Park Service or the Department of the Interior. And, certainly, a quick reading of the articles will not make

the reader an expert on any aspect of the law. But, a grasp of the concepts and principles in the literature will help managers or planners more easily wind their way through the various legal mazes they encounter.

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\* see the discussion regarding this thesis in this issue of FORUM

*Thomas W. Lucke, Chief, Water Resources Division, National Park Service, Fort Collins, Colorado.* □

## **700-Year-Old Ceramic Pot Discovered at Isle Royale National Park**

***Bruce Weber***

The recent discovery of a 14th Century ceramic clay cooking pot at Isle Royale National Park is one of the most remarkable archeological finds in the Great Lakes basin in recent years and is attracting considerable interest by archeologists and the public. Isle Royale is a wilderness island located in Michigan waters of Lake Superior, twenty miles from the Ontario mainland.

**Discovery.** The basketball-size relic was found in August 1985 lying in a bed of sand at a depth of 70 feet in Rock Harbor, where cold waters (probably 35°F year round) kept it in an optimal, stable environment for 700 years. The discovery was made accidentally by Scott McWilliam, a trained diver working with the National Park Service's Submerged Cultural Resource Unit, while performing an underwater search for the remains of a pontoon plane that crashed in 1935. The SCRU dive unit is completing a five year study of Isle Royale's underwater cultural resources which includes major shipwrecks and land-based cultural sites.

**Significance.** Dr. Pat Martin, Archeologist at Michigan Technological University who is studying the fourteen-inch-tall vessel, said the actual discovery in the well-used Rock Harbor waterway is remarkable in itself, but the pot has significance in several other ways as well.

First, the vessel is nearly intact; 75% of the original pot remains in one piece. This is highly unusual in a northern environment such as that found around Lake Superior, where relatively porous vessels such as this one typically succumb to damage caused by moisture and the "freeze-thaw cycle." Because frost-heaving commonly breaks ceramics into small pieces, very few vessels of this age that are this complete have survived from the Upper Great Lakes.

The pot is also a significant indicator of wide-area cultural contact. The vessel's distinctive style and technique of manufacture give several clues as to its age and cultural origin. The way that the

vessel has cracked indicates that it was originally formed by laying up coils of clay that were later annealed by paddling the outer surface while holding a hand on the interior. The rounded, globular shape and crushed granite tempering material are also distinguishing attributes of what is known as the Late Woodland Period in this region. Of particular interest are the decorative elements found on the upper portion of the pot. The constricted neck of the vessel rises to a splayed-out collar. This collar includes several raised points known as "castellations" (built like a castle). Around the exterior of the collar are several sets of zig-zag diagonal lines formed by pressing a pointed tool into the clay while it was wet and plastic (a decorative method referred to by archeologists as "jab and drag"). These lines rise to the rim at the castellations, the two design elements thus reinforcing one another. There are small tool impressions placed around the rim as well.

Dr. Martin indicates this combination of manufacture and design represents a distinctive style of pottery best known from an archeological site in the Straits of Mackinac (250 miles east and south of Isle Royale) known as the Juntunen Site. Excavated and analyzed by archeologists from the University of Michigan in the 1960s, the Juntunen Site yielded large quantities of artifacts and information about prehistoric Indians in the Upper Great Lakes. The characteristic pottery of the last group of people to inhabit the site included a large proportion of vessels very similar to the example from Rock Harbor. That similar vessels should be found in both locations is not terribly surprising. The occupants of the Juntunen Site were regular users of native copper, a mineral that could be obtained with ease by traveling to the Keweenaw Peninsula or Isle Royale, or by trading with people in these areas. The many small prehistoric copper mines of Isle Royale were utilized as far back as 3500 years.

Juntunen Phase pottery is known from a number of sites in the Upper Great Lakes: from sites on the Ontario shore of Lake Superior, along the North Channel of Georgian Bay on Lake Huron, and scattered southern Ontario locations. It has stylistic affinities (or inspirations) from the Ontario homeland of the Iroquois, and has been dated from circa 1200-1400 A.D., perhaps even later. Attaching an ethnic identity to material several centuries old in this region is tenuous at best, but the makers of this pot were probably ancestors of the Chippewa (or Ojibwa) people who lived in this region when European explorers first visited here.

Dr. Martin hypothesizes that the pot probably found its way into the waters of Rock Harbor via an overturned canoe, or perhaps was thrown into the water by someone who was angered when the pot's bottom broke. While these ideas remain speculative, we do know that the vessel was used for cooking, because a layer of charred residue still clings to its surface. Furthermore, the pot was found offshore from a 19th century copper mine—a mine that was established on the site of prehistoric mining activity. It is highly likely, therefore, that the presence of copper was the stimulus that attracted the pot's owner to this place.

**Conservation.** How to best care for this potentially delicate ceramic object became an immediate concern for diver Scott McWilliam, and thereafter for park naturalist Bruce Weber and park historian Dave Snyder. McWilliam quickly recognized the pot—which was first noticed by his diver partner—to be something of great significance: "the largest most intact piece of Indian pottery ever recovered in this area." McWilliam made the decision to bring it up to the surface not only because it was almost completely exposed and by itself with no other fragments around, but more importantly because it was in an area where it could be damaged by anchors from boats overhead. While his assistant juggled lights and TV camera to video the event, he excavated the pot and slowly brought it up to the surface. Rather than expose the artifact to fresh air, McWilliam had another assistant fill a plastic insulated picnic cooler with lake water and placed the pot inside the cooler before lifting it aboard the dive boat.

Back at park headquarters, the park staff received the valuable discovery with surprise and quickly set about finding the best conservation method to preserve the rare artifact. From the start it was assumed that the pot—which was in a cold, saturated, stable environment for hundreds of years—could become very fragile as it dried. Telephone calls to archeology laboratories throughout the Great Lakes brought little help, since conservation of entire pots is not commonly dealt with here. First hand conservation experience was needed. Through the grapevine of referrals eventually surfaced the name of M. Brigid Sullivan, conservator at the National Park Service's Western Archeological and Conservation Center in Tucson, Arizona.

Sullivan, with calmness and precise eloquence, laid out the strategy to preserve the vessel. Two weeks after discovery, treatment began. Because it was found in the freshwater of Lake Superior the pot probably did not contain any damaging salts; nevertheless, it was washed in clean water to remove other possible contaminants and colloidal mud. This water was slowly drained from the cooler's spigot and then slowly replaced with distilled water at room temperature. Due to the relative lack of distilled water at the remote island park, three complete changes of water prescribed by Sullivan were carried out over a period of three weeks.

The pot was dried very slowly. When the last wash water was drained from the cooler, the pot was sprayed lightly with Lysol spray to inhibit mold growth during the slow drying process. The lid of the cooler was left partly open to allow for slight air circulation.

"It is important to realize that ceramics—particularly low-fired aboriginal ceramics—are extremely fragile in water burial and can fall apart during drying" explained Sullivan. For this reason the pot was inspected everyday for signs of surface disintegration or cracking, and the lid replaced. Photos were taken "before" the process began for documentation and comparison, but unfortunately these early photos did not develop. The park staff watched for signs of structural deterioration during this process, because if dislodged surface particles or cracks appeared, the pot would need to be "consolidated"

immediately before drying further.

The preferred consolidant was the acrylic emulsion Rhoplex AC53. This would be used by mixing it 1:3 with distilled water and then immersing the pot (wrapped in a soft hairnet) slowly and completely into the solution in the container. After two days the pot would be slowly lifted, drained and allowed to dry. When this process is used, the ceramic object is stabilized but acquires a shiny, plastic appearance. Immersion in Rhoplex also eliminates the possibility of future carbon dating. Fortunately, however, the pot did not deteriorate and it was never necessary to use this non-reversible chemical consolidant.

**Future Use.** The Isle Royale pot is stabilized and ready for exhibition and further interpretation.

Archeologist Pat Martin concludes "Many questions remain to be answered. We need to determine if an occupation site is located nearby the discovery site. We need to carefully study the residues in the pot to see if any fragments of bone or seeds remain, clues to the diet of the pot's owners. In addition, we are seeking funds to have a radiocarbon date run on the carbonized residue, to determine whether our dating on stylistic grounds is accurate. Finally, plans are afoot to find the best possible way to interpret the pot for the public, to offer insight into the lives of prehistoric visitors to Isle Royale."

*Bruce Weber*, Park Naturalist, Isle Royale National Park, Michigan. □

## **A Needs Assessment-Based Review of the National Park Service Science Program in the Rocky Mountain Region**

***Katherine Phelps Kitchell***

[Since Ms. Kitchell's thesis appeared in 1985, it has been rather widely read (for an unpublished paper) by those concerned about park management—especially USNPS managers and scientists. The FORUM is seeking ways and means to make available copies of this important work to the park management community; the 161-page typed document would consume about 80 pages of FORUM, however. We present here the abstract of Ms. Kitchell's thesis, and two reviews—one from an historical perspective by William E. Brown, and one from a scientist's viewpoint by J. Robert Stottlemeyer...Eds.]

### **Abstract**

The National Park Service science program, which provides research results to park managers for assistance in making resource decisions, was last reviewed in 1963 by a committee of scientists. That evaluation resulted in the establishment of an agency science

program under the direction of the Office of the Chief Scientist the following year. This study, using the needs assessment approach to evaluation, reviews the effectiveness of the National Park Service science program in the Rocky Mountain Region from the perspective of its clients, the park superintendents.

Data from interviews with 21 superintendents and 10 park biologists representing 50% of the region's natural, historical and cultural, and national recreation areas were analyzed to determine strengths and weaknesses in research generation and utilization. The analysis of participants' comments, supplemented by interviews with 16 science administrators in the regional and national offices and eight resource management specialists from the Rocky Mountain Region, examines the roles of the parks, the Rocky Mountain Regional Office, the Washington Office, and alternative institutional arrangements in obtaining and fostering the use of research results; the responsibilities of park managers and scientists; and resource decision making and the research process.

Barriers to effective research generation and utilization in the National Park Service may be attributed to conflict between the Washington Office and the parks over the control of personnel and funds, failures in communication between the parks and Washington Office and between managers and scientists, the lack of agency and managerial commitment to research, and lack of program continuity throughout the Service and over time. Although past program evaluations questioned agency commitment to research and recognized problems in long-term continuity in the science program, this study provides more detailed explanations for these organizational phenomena and identifies the sources of conflict over program control and inadequacies in communication. In addition, the importance of clear research problem definition and dialogue among participants in the research process was verified.

Contrasts between managers and scientists which were discussed by project participants revealed that scientists have a difficult role to play in the National Park Service. National park managers' expectations of research personnel include far more than research. National Park Service scientists perceive these expectations and assignments that result from them as threatening their performance of their primary role as researchers as well as their professional growth.

*Katherine Phelps Kitchell* is Resources Management Specialist for Canyonlands Complex, U. S. National Park Service, Moab, UT. □

## **Historical Perspective**

***William E. Brown***

Kate Kitchell's 1985 review of the science program in Rocky Mountain Region relies largely on interviews with park managers and



their research-science and resource-management agents in a fifty percent sampling of the region's parks. From these sources—plus observation of park science programs and interviews beyond regional boundaries—she gives us a transect cutting across the flow of science-program history. From that transect she generalizes for the region and beyond to larger science-program concerns throughout the Service. Very purposefully, it seems to me, she uses the transect, the moment in time she has captured, to depict the dynamics of our institutional ecosystem. In the polarities of that system—time-and-money constrained management at one end, endless study of timeless scientific processes at the other—she revisits tensions that have plagued the Service since its founding.

The sentiments Kate elicited from her sources were heard when wind-up phonographs broadcast Caruso across the campground: science hobbyists versus uninformed management pragmatists; ecological wisdom pitted against political decision making; analyzed data first, action later. And so on. The question of the park manager's control over scientists, as against professional control from the region or Washington, continues to agitate. As does the scientist's need for insulation from operational drudgery, if he or she is to perform long-term research, which itself is always prey to budget cuts and the uncertainties of annual funding. Arguments over integration or independence of research science and resources management recall earlier litanies. And so on.

It seems that research science is some added organ, a kind of appendix in reverse, that cannot be grafted into the Park Service body. Why is this?

Operational management deals so largely with people and the facilities and services they need that the park's living landscapes tend to become backdrops for the "real world" of management concerns. Subtle ecosystem processes rarely produce catastrophes equivalent to a road washout or a life-threatening fire. The decades-long theft of a plant community by disease or exotics cannot compete with car theft or campground burglary. Yet, precipitate management actions in response to immediate or short-term needs can disrupt the backdrop, robbing the park of its reason for existence. These, too, are old thoughts.

Kate Kitchell evaluates the origins and backgrounds of park managers and research scientists to trace the biases and mind sets that contribute to disabling tension. From her interviews she cites the pressures on managers for action dictated by funding windows, political pressures, and other encumbrances of a public-service agency. And she notes the felt contempt of the superior scientist who, though not responsible, seeks dominion over park management, which must be saved from itself. Adding spice are the case-study horrors, implicit here, resulting from developmental and other management actions that have destructively altered park resources. These matters, too, have been adduced in the past.

The value of this study is its hard-core inductive validation, by current sampling, of the persistence of old dilemmas that the Service

cannot seem to shake. With few exceptions, both managers and scientists conceptually accept the complementary nature of their distinct disciplines and functions. But at the level of execution, with all of the day-to-day exigencies at work, the field of agreement erodes. In her final chapter, Kate advocates a new look at the resolving elements of control, communication, continuity, and commitment. This discussion offers both practical and theoretical help to people who know that they must work together, but haven't yet found the combination.

In 1975, Dr. Garrett A. Smathers, then Chief Scientist at the National Park Service Science Center (Mississippi), summarized the history of scientific endeavor in the National Park Service. He showed that in the 1920s and 1930s, under the guidance of Chief Biologist George Wright, the integration of science and park management approached working partnership. During World War II and through the Mission 66 era, both national and Service priorities weakened science, often to the detriment of park resources. As a result, outside pressures led to the 1963 Leopold and Robbins reports—the first presenting ecosystem management recommendations, the second the research and resource management means to get ecosystem management. A renaissance of scientific influence in park management followed. Major results included the Resources Basic Inventory program, improved organization for scientific endeavor, and increased funding incident to environmental and cultural resources compliance responsibilities. The recent, short-lived resource management trainee program focused new attention on science as a management tool. Regional and park offices continue to experiment with organizational variations—centralizing, decentralizing, and changing lines of authority and reporting. Environmental law suits bring scientists to the fore and spur affected managers to declare that they need adequate science to define and defend their resource management programs...Yet still today, as evidenced by Kate Kitchell's paper, rigidities and antipathies—newly compounded by budget cuts and competition for funds—continue to obtrude. A sense of confusion over Park Service science policy is widespread. A new science charter is needed to properly order long-term basic research, mid-term compliance and resource management, and short-term management emergencies. It is indeed time for a new look, of a depth and breadth that expands upon the Leopold-Robbins reports of 1963.

In the process of making these studies—called for in Director Mott's 12-Point Plan of Action—special attention should be paid to the history of the Service's more productive scientific periods. What were the combinations of control, communication, continuity, and commitment that worked then? Can they be revived and enhanced to work now?

*William E. Brown* , Historian, Alaska Regional Office, USNPS,  
Anchorage, Alaska. □

# **Review of Needs Assessment**

***J. Robert Stottlemeyer***

Ms. Kitchell does a credible job in what I largely must view as still another assessment of NPS science difficulties and needs. Any inductions to a larger perspective are considerably limited by the regional scope of her data base. However, these 'outside' assessments are most important for they further fortify the already well documented case against continuance of the status quo with regard to the role and function of science in the USNPS.

Rather than review the structure and detailed content of this thesis, which I am certain will be done by others, I would rather pull out and comment briefly on what I see as important points raised by the author. They are noteworthy especially coming from an outside observer.

Ms. Kitchell states that the primary clients of the NPS science program are the park managers. This is a common but inaccurate statement. The clients are the American public. Research must serve in carrying out, both in the short and long term, the broad mission of the Park Service (see Sudia 1986). The laws that created the National Park System decreed that the resources be managed and administered for the common benefit of the people of the United States. Sure, some study or, more accurately, consultation is necessary to meet individual park-specific short-term issues. But the futility of setting and executing national research priorities based strictly on a park-by-park derived list of needs, as from the resource management plans, is intuitively obvious. This point was very eloquently brought forth by Regional Director Boyd Evison at the recent Conference on Science in the National Parks.

The author correctly identifies four major and recurring problems with research in the NPS: program control, communication, continuity, and NPS commitment to research. The debate over program control—should it be under local management or by the scientist—is ages old, and has taken place at some time or another in virtually every public and private organization that has a research function. This has been made an overly complex issue. By its nature research is basically a quality control function. In time the results from it will challenge the status quo. Thus, at times local management has reason to believe that research may not be very useful. Also much research is inductive and, for NPS, has to be long-term in nature. This requires continuity beyond the relatively short term of a park manager or resource management specialist. Because of these characteristics research must have considerable independence from local management to succeed.

The organization of research in the NPS is different—perhaps unique—from other public and private agencies. Usually NPS has attempted to direct research as part of day-to-day park operations. One only need to assess the approach used by other organizations, public

and private, to see that a remarkably uniform organizational structure and role and function (i.e., niche) for research emerges. It would not take great imagination to implement such a program in NPS.

I agree with the author's points on communication. However, she fails to fully point out the need to also communicate with the outside scientific community. The NPS science program essentially is not peer reviewed. The NPS does not even have a standing science advisory group. The author's suggestions on the need for research continuity are also timely. It was the recurring theme at the recent Ft. Collins meeting. And the weak NPS commitment to science is of long standing and clearly documented in the percentage of the NPS budget which goes to research and resource management.

Is there a common element among these recurring problems? Probably so. It may be the central point brought out quite clearly in the recent reclassification of the 025 series by the Office of Personnel Management (see GS-025 Park Ranger Standards, August 1986).

Ms. Kitchell concludes that "Without strong support from the National Park Service director and his staff....these problems will probably persist." The author includes a list, not new, of administrative steps which could be taken to improve the commitment of the NPS to research. "The lack of such administrative mechanisms are symptoms of the prevailing conflict between the field and Washington over program control and direction, a problem which exists in all divisions of the National Park Service...." Many, perhaps most, of the present difficulties within the NPS science program are but symptoms of Servicewide difficulties.

This is not a criticism of Ms. Kitchell's efforts, but in reviewing her document one cannot help but be reminded of very similar recommendations and conclusions beginning in 1963 with the National Academy of Sciences report (NAS 1963), and followed up in numerous subsequent studies and evaluations.

Significantly the author cites numerous publications on management principles and practices, and suggests the possibility that NPS approaches and administrative mechanisms do not follow accepted practice if, in fact, many times they are not arbitrary. Management is a profession. Today it is, or should be, a sophisticated endeavor. The design and execution of a management system requires the best players. A well-managed professional organization will not have too much difficulty putting in place and adequately funding a responsive research program.

### **Literature Cited**

National Academy of Sciences. 1963. *A report by the advisory committee to the National Park Service on research*. National Research Council, Washington, DC. 156 pp.

Sudia, T. W. 1986. *National Parks and domestic affairs*. The George Wright Forum 4(4):19-27.

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# **Brief Note on Mrs. J. Robert Shuman [formerly Mrs. George M. Wright]**

***Ben H. Thompson***

[Earlier this year, in The George Wright FORUM 4(4), we reported the tragic accidental death of Mrs. Shuman. Insufficient information at that time prevented us from doing justice to this grand lady. The following has been kindly sent to us from former NPS Assistant Director, and brother-in-law of Mrs. Shuman, Ben Thompson...Eds.]

**Bernice Ray**, known as 'Bee' all of her life, graduated in political science from the University of California, Berkeley, in 1929. She and George M. Wright were at the University during some of the same years. On the campus she was a member of Delta Gamma sorority and he was a member of Delta Upsilon fraternity.

She and George were married in January, 1930, and lived in Berkeley where he had established an office for the Wildlife Surveys he was conducting in the national parks.

Bee had no background in biology, but she strongly supported George in his work. After their marriage she went with him on nearly all of his trips into the parks, collecting information on wildlife conditions, and often camping in remote regions, as in the upper reaches of the North Fork Flathead River in Glacier National Park and in the Bechler River country of Yellowstone. She had a fine social sense and their home was a center for many festive parties.

A few months after their first daughter was born, they tucked the baby in a snugly covered basket, with a gauze window above her face, and drove to Yellowstone in winter. Baby and basket rode in the Survey's especially equipped truck, behind the driver's seat but in the open air—and thoroughly enjoyed the trip.

In 1934, then with two little daughters, Sherry and Pamela, Bee and George drove to Washington, DC where George, in addition to his Wildlife Division responsibilities, chaired the preparation of a report on the recreational use of land in the United States for the President's National Resources Planning Board. During the last night of the report's preparation, Bee brought in sandwiches and coffee to the staff. The report was finished and handed in the next morning, on time.

In 1935 after being several months in their Berkeley home, they closed the home and moved their family and furniture to Washington, DC where they established a new home at 28th and O Streets in Georgetown. There in February 1936 Bee received word that George, traveling with a presidentially appointed group studying proposed parks and monuments along the international boundary with Mexico, was killed in an automobile accident. Some months later she returned with the children to Berkeley. The Federal Government had by then assumed financial responsibility for the Wildlife Division.

In 1938 Bee and J. Robert Shuman, of the investment firm of Shuman Agnew, were married and made their home in San Francisco.

They were living at 1940 Broadway when Mr. Shuman died in October 1982 and where Mrs. Shuman lived until she was killed in an automobile accident in February of this year, just 50 years after George Wright's similar, tragic death.

She is survived by her two daughters, Mrs. Sherry Wright Brichetto and Mrs. Pamela Wright Lloyd and their families, by Mr. Shuman's two children, Mr. Jack Shuman and Mrs. Joan Lyehe and their families, and by her sister, Mrs. Mathilda Jane Ray Thompson.

*Ben H. Thompson, Glenwood, New Mexico.*

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## Society Notes

Attached to the inside back cover of this issue of FORUM is a dues/subscription notice to all members of The George Wright Society/subscribers to The George Wright FORUM. It will say whether or not you now owe dues—and when dues will be due if they aren't now—according to our records. The notice also provides space for change of address, should one be required, and an envelope preaddressed to the Society Treasurer.

For those receiving FORUM on an "official" designation, a confirmation of the current FORUM mailing list will be requested of the Washington and Regional offices in the United States, from the Park Canada Directorate office in Ottawa, and from individuals now on the mailing list in other nations.

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Those of us fortunate enough to have attended the recent (July) triennial Conference on Science in the National Parks in Fort Collins, came away believing that this was the best conference yet. Our heartfelt thanks go to Dr. Raymond Hermann, who was the conference organizer, arranger, and overseer. Thanks, Ray, for the superb job.

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