

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

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**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

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.

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 Yosemite³ 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,⁴ 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

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