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W. B. LEWIS

Superintendent



"LEARN TO READ THE TRAIL-SIDE"

A PERSONAL INVITATION.

YOSEMITE NATIONAL PARK IS YOURS! WE OF THE NATIONAL PARK SERVICE WANT TO HELP YOU TO MAKE FRIENDS WITH YOUR PARK AND TO UNDERSTAND IT IN ITS EVERY MOOD. ALL OF THE FOLLOWING SERVICE IS OFFERED TO YOU *free* BY YOUR GOVERNMENT:

Visit the Yosemite Museum!

Here you will learn the full story of the Park --- what tools were used by the great Sculptor in carving this mighty granite-walled gorge; who lived here before the white man came; how the Days of Gold led to Yosemite's discovery; how the pioneers prepared the way for you; and how the birds and mammals and trees and flowers live together in congenial communities waiting to make your acquaintance.

Plan your trail trips on the large scale models in the Geography Room.

The Yosemite Library in the museum provides references on all phases of Yosemite history and natural history.

Popular lectures on Yosemite geology and other branches of natural history are given by nature guides at scheduled times each day.

The nature guide on duty will be more than willing to answer your questions on any subject.

Go Afield with a Nature Guide!

Take advantage of this free service that will help you to know your Park. A competent scientist will conduct you over Yosemite trails, and from him you may learn first hand of the native flowers, trees, birds, mammals, and geological features.

See Schedule of Nature Guide Field Trips.

Visit Glacier Point Lookout!

From there you will obtain an unexcelled view of Yosemite's High Sierra. The binocular telescope will bring Mt. Lyell to within one third of a mile from where you stand; you can recognize friends climbing trails several miles away. The Nature Guide in attendance will help you to operate it and will explain what you see.

A small library is at your command.

You will enjoy the informal nightly campfire talks given here.

Attend the Nature Guide Campfire Talks!

In addition to the museum lectures members of the educational staff give talks as a part of the evening program at Camp Curry and Yosemite Lodge. Non-technical explanations of how Yosemite came to be; what you may expect of Yosemite bears; how the local Indians lived; what birds you see about your camps; what trout you will catch in Yosemite waters; how you may best visit the wonderland of the summit region; and scores of similar subjects are given by the National Park Service Nature Guides.

ALL OF THESE OPPORTUNITIES ARE PROVIDED FREE OF CHARGE BY YOUR GOVERNMENT.

—TAKE ADVANTAGE OF THEM—



YOSEMITE NATURE NOTES

Volume VI

January 31, 1927

Number 1

THE YOSEMITE SCHOOL OF FIELD NATURAL HISTORY A NATIONAL PARK SERVICE EDUCATIONAL ACTIVITY

By H. C. Bryant

The Yosemite School of Field Natural History is a summer school for the training of naturalists, nature guides and teachers of natural history, where emphasis is placed on the study of living things in their natural environment.

Its aim is to train students to study and interpret living nature that they may better enjoy life and also lead others to similar profit and enjoyment, thus making an educational contribution to the conservation of natural resources.

The establishment of the Yosemite School of Field Natural History resulted from a demand for a training in field studies and a desire on the part of the National Park Service and the California Fish and Game Commission to establish a training school for nature guides, teachers of natural history and Boy Scout and Camp Fire Girl leaders looking toward better knowledge of wild life and its conservation. This school seemed a natural outgrowth from the now well-established Yosemite Nature Guide Service, a service which finds difficulty in securing trained naturalists for its program.

From its beginning in the summer of 1925, both instructors and students have been pleased with the outcome of the venture. Students unanimously speak of the work as

being the most useful and profitable they have ever taken. The instructors are convinced that the emphasis on field studies develops enthusiasm and constitutes a needed supplementary training. All of the students of past seasons have made good use of their training during succeeding years and many have found places as nature guides, or nature councillors, in summer camps and in national and state parks. Having reached its third year, the school is no longer an experiment. This coming summer this educational project will assume the position of an established training school.

From the first, applications have exceeded the quota of students and now that the school is better known it is possible to admit only about one-fourth of those who apply. As a consequence, advance enrolments for future seasons are being received.

Location

With easy accessibility to its extensive fauna and flora, typical of five life zones, and its unique geology, Yosemite National Park constitutes an ideal location for a school of field natural history. A fine new museum building furnishes a splendid lecture room, library and other facilities. The recreational features are so apparent as to need no description.



Students may do their own cooking.

Term

Regular instruction is given from June 26 to August 8, coinciding with the University of California summer session at Berkeley; high mountain field trip August 4 to 12, 1927.

Teaching Staff

The director of the school, Harold C. Bryant B.S., M.S., Ph.D., in charge of education and research, California Fish and Game Commission, will be assisted by Ansel F. Hall, B.S., chief park naturalist, National Park Service; Carl P. Russell, A.B., M.A., park naturalist, Yosemite National Park; Mrs. Enid Michael, Yosemite nature guide; George Ruhle, Ph.D., nature guide, and several other Yosemite National Park trained nature guides.

COURSE OF STUDY

Lectures and Laboratory

1. Geology and physical geography of the Sierra Nevada.
2. Plant and animal distribution. Life zones.
3. Botany—(a) Common trees and shrubs, (b) Forestry; (c) Flowering plants, (d) Algae and fungi; (e) Ferns and mosses.
4. Zoology—(a) Invertebrates: insects, mollusks; (b) Common vertebrates: fishes, amphibians, reptiles, birds, mammals.
5. Conservation of natural resources.

Field Study

1. Field trips and study of the fauna and floral of the valley floor.

Hours, 8 a. m.—12 m. daily.

2. All day field trips each Saturday to the rim of the valley.

3. Special collecting trips for rarer forms.

4. A special problem, selected by the student, and necessitating field work with weekly reports of progress.

N. B.—Several mountain miles are covered in various field excursions and the Saturday trips necessitate a climb of 3000 feet.

Tuition and Fees

The school being a contribution to nature education by the National Park Service with the aid of the California Fish and Game Commission, no tuition is charged. Expense is thus limited to a \$5 registration fee and to sundry materials such as notebooks and collecting apparatus and to transportation, food, housing and clothing.

Daily Program

7:30-10:30 a. m.—Regular morning field trip. (Except Saturdays, Sundays and holidays.)

2:00-4:00 p. m.—Lectures and laboratory.

Saturdays, all day field trips to rim of valley.

8:00-10:00 p. m.—School campfire. (Tuesdays only.)

August 6-12—High mountain trip affording studies at timber line.

Museum open to students for study, 7:30 to 10:00 every evening but Sunday.

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The central camp for students has proven to be advantageous.



Mrs. D. A. Curry and U. N. Gilbo with Yosemite's record trout caught by Mr. Gilbo.

EUROPEAN TROUT IN YOSEMITE

By C. P. Russell

CONFUSION constantly results among Yosemite fishermen regarding the identity of the so-called German Brown trout and the Loch Leven trout taken from streams and lakes in the park. It has been stated by authorities on fishes that a pure strain of the German Brown trout is to be found in the Yosemite valley region but nevertheless it is more often difficult to specifically name an European trout from Yosemite waters than it is easy to state that the fish is definitely German Brown or Loch Leven.

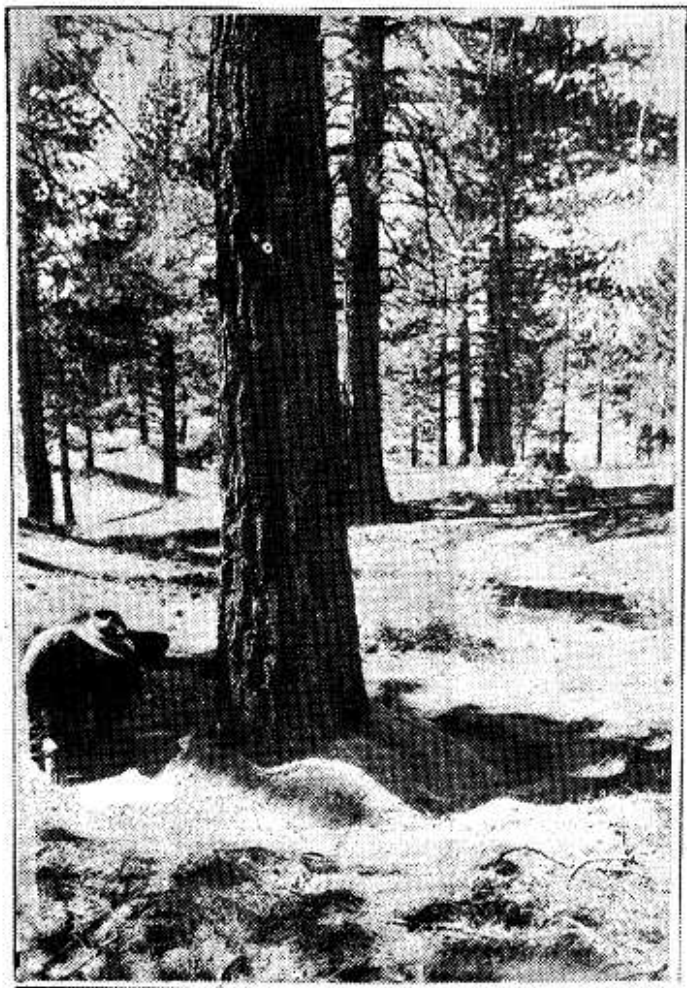
In 1894 20,000 eggs called Loch Leven (*Salmo levenensis*) were received at the Sisson (California) hatchery. In 1895 135,000 fish called German Brown (*Salmo fario*) were reared at the same hatchery. Since that time both "species" have been planted in high Sierran lakes and streams and it has been demonstrated that hybridization between the two has been very common.

As early as 1897 European trout were introduced as Loch Leven to Yosemite streams. Since that time both German Brown and Loch Leven have been brought to scores of lakes and streams in the park. Apparently they have in-bred, increased mightily and attained great size. The largest trout taken in the park have been caught in the Merced river and are of European ancestry. On June 5, 1924, U. N. Gilbo of Fresno landed a trout measuring $28\frac{1}{4}$ inches in length and weighing 9 pounds and 15

ounces. This monster was caught in the Merced near the mouth of Cascade creek. On September 28 of the same year Albert Skelton caught a $29\frac{1}{2}$ -inch European trout that weighed nine pounds and three ounces. This second huge fish came from the Merced just below Pohono bridge in Yosemite valley. Both of these trout are exhibited at the Yosemite museum. Since 1924 several other large trout have been taken from the river and all have been so-called Loch Leven, German Brown or some intermediate phase between the "species."

Now no less a fish specialist than David Starr Jordan comes to our rescue in this matter of properly placing our European trout. Dr. Jordan assures us that "the Loch Leven is simply the ordinary brook trout of England taken from deep water in a deep lake. The eggs deposited in the Merced river hatch out into the ordinary brown trout which is no more German than it is Irish." May we not call the European trout enigma solved?

In 1927 Yosemite fishermen may take 25 fish or 10 pounds and one fish, or one fish weighing 10 pounds or over.



—Photo by J. M. Miller.

In the Mono Lake region the Indians trapped the caterpillars by digging trenches in loose soil around the bases of trees upon which the worms were feeding. As the caterpillars became fairly mature, they crawled down the tree in an attempt to enter the soil and were caught in numbers in the trenches.

"Peagie" Trenches in Which the Monos Trapped Their Suppers

— By J. M. MILLER —

Among the prized articles of diet of the Mono Indians were the caterpillars of the Pandora moth, better known as "peagies" in the Indian vocabulary. A favorite collecting ground for this material seems to have been the Jeffrey pine forests growing on loose pumice soils in the volcanic country just east of the Yosemite National Park.

So far as can be determined the Indians collected the mature larvae, dried them, and stored them away for use as needed. It required some skill, as well as knowledge of the life history of the insect to "bring home the bacon" in the peagie industry.

This insect, like the lodgepole pine needleminer, goes through a two-year life cycle. The moths fly during a short period every other year, and the caterpillars do most of their feeding on the alternate years. The larvae feed on the pine needles near the top and on the outer limbs of the tree. As they become fairly mature toward midseason they crawl down the tree and go into the soil for a depth of one to two inches. Here they form pupal cases in which they remain until the following summer when the moths emerge and fly.

The Indians appear to have collected the caterpillars as they were leaving the tree to enter the ground. In the Mono Lake region the peagies do not appear to have been abundant, as the trees show no evidence of either old or recent defoliation. To collect one worm at a time would have been a slow and difficult process, so the Indians developed the method of trapping the caterpillars by digging shallow trenches in loose soil around the trees.

I had frequently heard of these trenches but never observed them

until on a field trip near the Inyo-Mono National Forest boundary in August, 1926. One small area was found where some recent worming operations had evidently been going on, as the trenches were quite recent. These circular trenches were from 8 to 10 inches in depth, the inner bank sloping gently away from the tree, the outer bank forming a nearly vertical wall which the caterpillar could not climb. The probable system was for the squaws to visit the trenches at intervals and collect the caterpillars that had accumulated there.

Near Mono Mills was found an area which had undoubtedly been one of the favorite worming grounds of the past. Over hundreds of acres every tree above two feet in diameter had been surrounded by one of these peagie trenches. That they had not been used for many years was shown by the fact that the trenches were filled with forest litter and in many cases covered with a growth of young trees and brush. On part of the area a recent fire had burned out the litter so that the trenches could be readily seen, but outside of the burned area it required close observation to detect them. It must have required no small amount of labor to dig these ancient ditches with the primitive tools of the Indians.

In the Southern Oregon region the Klamath Indians also used the Pandora moth for food, but collected their material after the pupal cases had been formed in the ground. Here the insects occurred often in epidemic form, defoliating great areas of yellow pine timber. It was possible to secure great quantities of these pupal cases by scraping off the top layer of soil, so no special trap was necessary. The trench seems to have been a device invented by the Mono Indians because of the relative scarcity of peagies in the Mono Lake region.

THE 1927 FIELD SCHOOL

Continued from page 2.

The plan is to make the work supplement the lower division university courses in botany and zoology with the opportunity for field work. The course affords first-hand acquaintance with various living forms and enables a more intimate study of nature and less of books. Familiarity with living plants and animals, the lack of which many feel so keenly, will be stressed. Opportunity for practice in teaching, leading parties afield, in presentation of nature lore at the campfire and in writing nature notes will be given every student.

For further information apply to
PARK NATURALIST
YOSEMITE NATIONAL PARK
YOSEMITE, CALIF.

"Knowledge never learned of schools,
Of the wild bee's morning chase,
Of the wild flower's time and place,
Flight of fowl and habitude,
Of the tenants of the wood;
How the tortoise bears his shell,
How the woodchuck digs his cell
And the ground mole sinks his well;
How the robin feeds her young,
How the oriole's nest is hung."
—Whittier.

Examinations and Grades

Emphasis will be placed on intensive field work and each student will be expected to know and identify all the more common Yosemite trees, shrubs, wild flowers, insects, fishes, amphibians, reptiles, birds and mammals. Grading will be apportioned as follows:

- (a) Field observation and identification, 60 per cent.
- (b) Teaching ability, 20 per cent.
- (c) Notebooks, 10 per cent.
- (d) Preparation of scientific specimens, 5 per cent.

(e) Familiarity with literature, 5 per cent.

Credit

Although the work is of university grade, yet for the present, no university credit is offered. A certificate showing that the work has been satisfactorily completed is issued.

Registration and Matriculation

The number of students in the 1927 session will be limited to twenty. Students will be accepted on the basis of date of written application after fulfilling educational requirements, which are: **Two years of college work or the equivalent.**

Housing

It is hoped that students will, on account of sociability and other advantages prefer to camp in a section reserved for students of the school. A tent for two with housekeeping equipment, secured from the Yosemite Park Curry Company, pro rated costs \$7 per week up. Groceries and meat are to be had at practically city prices. The camp is centrally located and has proved advantageous to students. Hotel or American plan camp accommodations are near at hand for those who find it impossible to camp. Free camp grounds are available for those who have their own equipment. If you plan to camp in the reserved section you should bring your own bedding. Send it by parcel post, care of Housekeeping Camps Headquarters, preceding your arrival.

Clothing

Cutting clothes are in order at all times and places. Comfortable walking shoes are necessary, as field trips include excursions covering many miles of mountain trail.



FROM THE NATIONAL CONFERENCE ON OUT-DOOR
RECREATION

Called by PRESIDENT COOLIDGE

"THAT THE CONFERENCE ENDORSE NATURE STUDY IN SCHOOLS AND THE EXTENSION OF THE NATURE STUDY IDEA TO EVERY AMERICAN SCHOOL AND FAMILY; THAT THE ESTABLISHMENT OF MUSEUMS OF NATURAL HISTORY IN NATIONAL PARKS WILL INCREASE THE EDUCATIONAL RECREATIONAL VALUE OF THE PARKS".—*Resolution of the Conference.*



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Dan Anderson