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Yosemite

Enters the '90s

An Interview with Yosemite Superintendent Mike Finley

Henry Berrey

Q: While you worked at Everglades National Park there seemed to be a good deal of concern about problems stemming from human intrusion into the natural resources, including the dwindling bird population and the plight of the Florida panther. In view of the popularity and use of Yosemite, do you feel a similar situation awaits the wildlife of this park?

A: No. One difference between the Everglades and Yosemite is that while Yosemite's visitation is 3.4 million people a year, Everglades just barely reached a million. But it's a large wilderness area, the use is dispersed, and Everglades' problems stem from being within 20 miles of a county that's growing by 100,000 people a year. It is primarily an aquatic and wildlife park, and being downstream it receives water that is heavily laden with phosphates and nitrates that are changing the basic plant structure of the ecosystem.

So I would say that while some of the problems are similar, and while we have some air quality problems in Yosemite, Everglades' are a little more serious, what with nuclear power plants and resource recovery plants being proposed, a little more sensitive plant species including orchids and semi-tropical plants, and some very rare plants. So that it's the neighboring development—the threat upon and competition for water—that is the greatest threat to Everglades.

And some of the animal species are in great plight. The

park has lost 90% of its wading birds since the 1930s, the roseate spoonbill population has dropped 50% since 1980. There's one male Florida panther remaining and we project extinction within five years unless we introduce new gene material. Recently, the Florida panther population has been exposed to concentrations of mercury of 105 parts per million—the safe limit that the EPA prescribes is three parts per million. There's an example of poison collecting in the food chain. The Florida panther eats alligators and turtles and raccoons. We thought

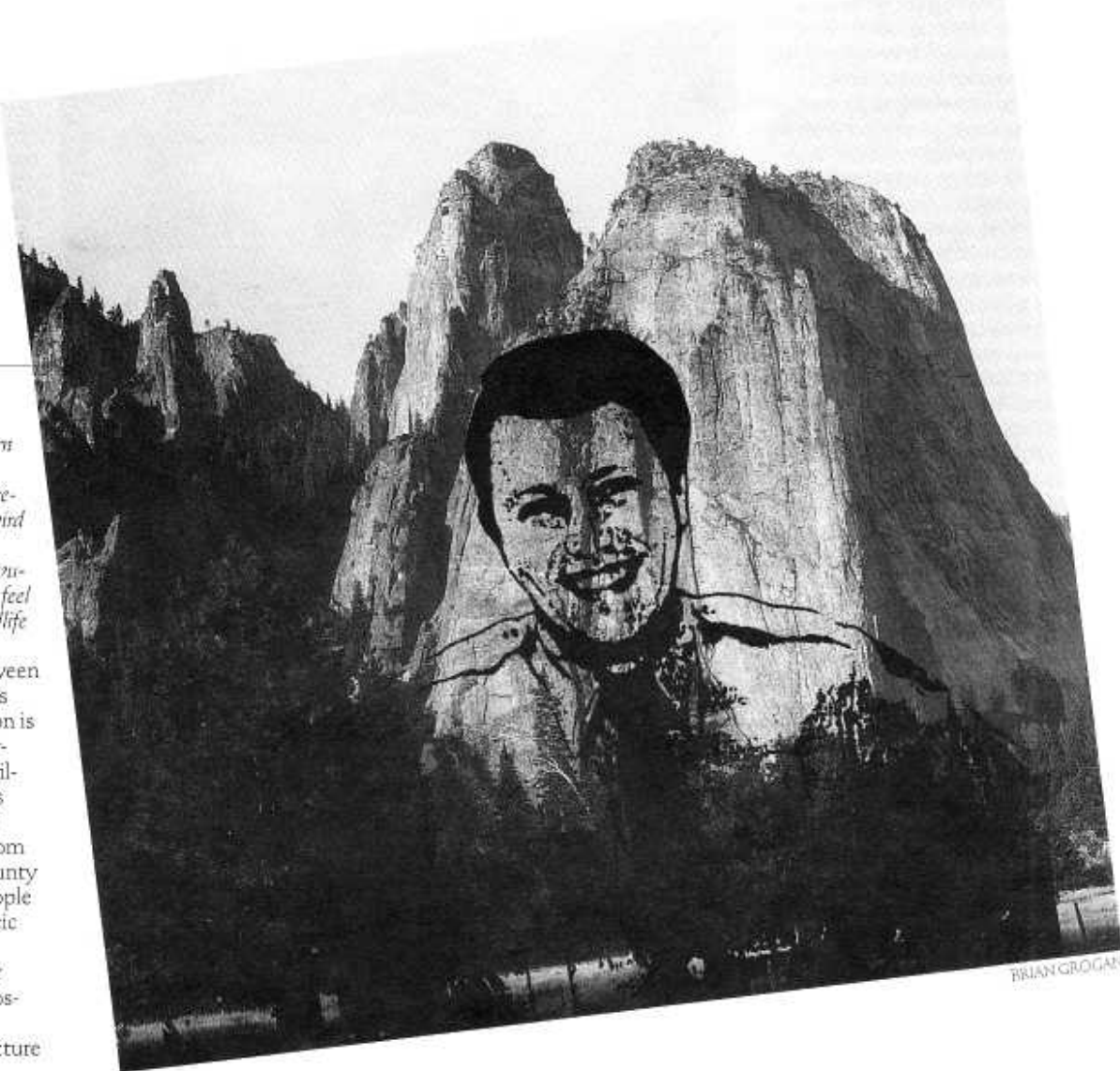
that one of these animals had died of natural causes, now we believe it was mercury poisoning as it had ingested up to 105 parts per million.

While I see some air quality problems in Yosemite and the yellow-legged frog is declining in population, I would say that Yosemite has only early symptoms. But unless the air quality deteriorates seriously, I don't think that we'll get to an Everglades situation for a good number of years.

Q: Since your arrival here last August, have you been able to define the greatest, most important issues fac-

ing Yosemite?

A: I'm not sure that I have. I'm still in what I view as my learning phase, and I'm trying to synthesize all the data. Obviously, one of the greatest issues, because of the polarity and the degree of public concern, is resolving the GMP Examination Report and the GMP itself. Coming to grips with the GMP is no doubt one of the biggest issues. Re-negotiating the Curry contract will be a major issue in many peoples' minds. So in the administrative frame or carrying out public policy, those have to rank as the top two.



BRIAN GROGAN

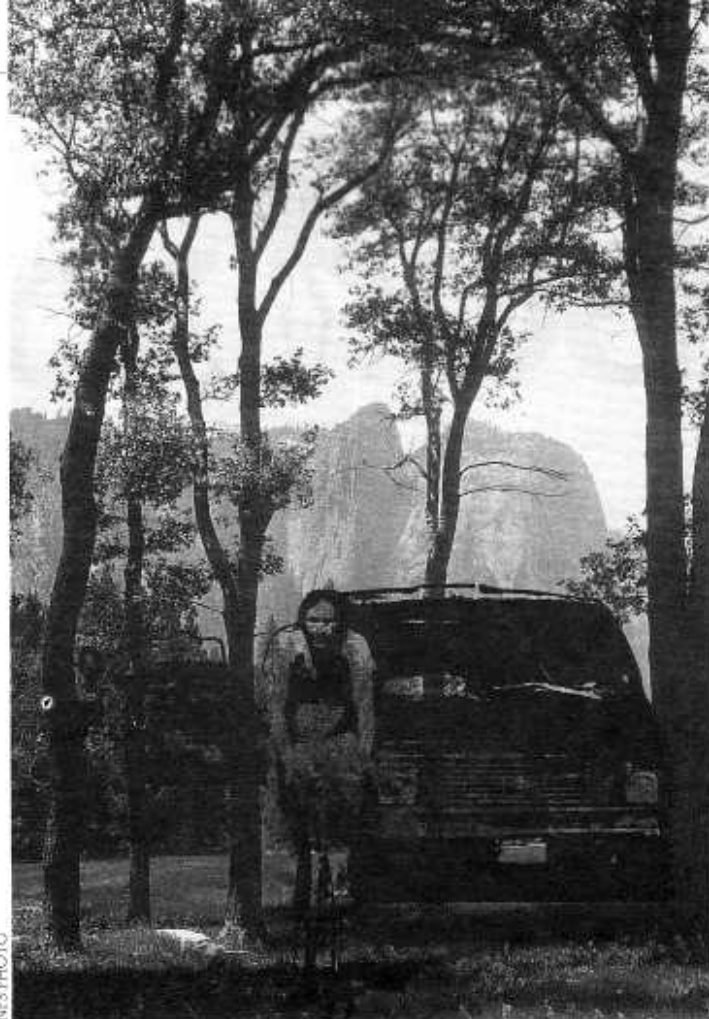
When you get into natural resource concerns, such as we talked about with Everglades, I see a couple of them coming. One, again, would be air quality. We're a single player in a great big California problem in the San Joaquin Valley. I think we have opportunities, though, to do a lot of recovering of some resources. I'm really pleased with what I've seen here done with meadows and oak woodlands. One of my goals is to restore the aquatic ecosystems.

Q: What about bears and the contention that bears and people will never mix congenially?

A: Well, I think we'll finish off the campground food containerization program soon. I looked at a graph when I first got here and it looks like the number of bear incidents is leveling out. If we can equip the rest of the campgrounds with bear-proof containers, and if we can get into production a backpacker food container that's comfortable and practical, I think we can move ahead towards improving the human-bear relationship.

We're continuing to put emphasis on restoration of meadows. I have recently developed a five year trail plan with our new trails foreman who's a marvelous person from the Tetons. We're going to be putting both public and private money into restoring our trails. About fisheries — when I talk about restoring aquatic resources, I'm not talking about "put and take" fishing. I'm talking about restoring the riparian river banks, restoring those conditions that allow a natural population of trout to flourish, to be visible to someone walking along El Cap Meadow and to have the view of aquatic resources excite that person just like the sight of deer in a meadow.

I want to study some of Yosemite that's shopworn, that looks like it's over-used. A good example is the lower Yosemite Falls trail. We will redirect our efforts to manage the way the visitors use that trail. We can spruce it up with some tasteful



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barricades, perhaps have a few benches. We'll adopt a standard architectural motif, aesthetically pleasing to the public, make people feel that there's some creative design that went into it, that it's well-maintained. Erect some tasteful, low-key barriers so that the woodlands around these areas aren't trampled to death. We can restore vegetation, do some vista clearing. In a lot of these areas, the problem of trampling comes from the fact that some of the old historic vistas where people used to take pictures are now overgrown and people now just move to realign their pictures. So, restoration, which is a major goal of the GMP, is high on my list.

Q: Yosemite has a large and sometimes militant group of admirers. They became concerned last summer over the prospect of the construction of employee dormitories in the Yosemite Lodge area to house concessioner employees, and about the somewhat confusing way that the plan was or wasn't announced to the public. What is the status of that project?

A: That project, and what we would do about any Valley housing, won't be resolved until we release the housing study and an accompanying EIS. It's totally on hold until we do the studies and

a full EIS, as required by the GMP and the NPS, is completed. I think the information that will come out of a housing study will be a logical thing to focus on.

Q: There was confusion about the role of the Congressman (Coelho) and all that. It flared up and almost as suddenly was sidetracked or discarded or whatever happened. A lot of people were quite concerned over the tactics of the proposition.

A: I think one of the things that's obvious, if you're going to do anything with Valley housing, is that first of all you have to complete the housing study that's called for in the GMP. What I think the Park Service realized is that you're not going to do anything in relation to Valley housing until you've done a housing study in a manner that promotes public involvement. That's why I know it was dropped so quickly. The plan calls for a housing study. If you haven't done it, you better do it.

Q: There's been considerable fear that in a number of areas the Park Service has been sluggish in its efforts to keep the 1980 GMP alive. Could you comment on this please?

A: I haven't run into anyone in the Park Service that disagrees with the overall goals of the plan.

There are some minor views that some of the prescriptions might be difficult to achieve or don't make sense. Let me give you an example.

Right now the plan calls for us to build a grocery store and a bicycle stand by the Curry ice rink. Not many people focus on that, but that's in the plan. So I could authorize Ed Hardy tomorrow to go over and build a grocery store under the GMP. I'm not so sure that makes sense. I don't know totally what the reasons were for that decision in 1980, and I want to explore those because I'm new on the job. But I'm not comfortable with that decision. But yet the plan calls for that and would allow it. So, if you live by the GMP, you die by the GMP. If we're going to be selective in the application that's one thing, and it's done via a public process.

We deviated from the GMP at Summit Meadow. The plan called for a 40-car parking lot, but because this is great gray owl habitat we said that's not a good idea any more so we added them to the Badger parking area. I think that's alright. But what I'm running into is perhaps an unwillingness to reconsider some aspects of the plan. I think once the rhetoric cools down and we bring out more of these kinds of examples, people will be more willing to say maybe we need to look at them again. But we've got to wait for things to cool down.

Q: The contents of the GMP Examination Report project a lot of reasons for inaction and the implication that the original GMP was seriously flawed from the start and basically valueless today. Do you feel it's a live, living possibility, or has it pretty much been sidetracked?

A: No, I think the goals are very valid. If you go through the goals, and we've already talked about one, another of the goals of the GMP was to restore the ecosystems and wildlife and floral values of Yosemite. And that's still a goal. You can see it outside the window in the oak woodland restoration, the mea-

dow restorations, and I've talked about fisheries.

One of the things that was just presented to me in Denver by a landscape architect who did a comprehensive design for us at El Portal and in Yosemite Valley, and here's a man who was 10 years in private practice. He worked for Ryan Homes, knows how to squeeze houses on acreage for a private developer. He showed me El Portal platted out. The interesting thing about it is you can put Park Service housing down there, you can put some Yosemite Institute housing, if you choose to do that, but there's no room left for Curry housing at El Portal.

Well, that just raises the question then, well, if we can't put it down there, should we put all Park Service, should we put half and half, but it's got to go somewhere else. Does it go to Foresta? Does some of it go to Wawona? Does some more of it stay in the Valley? It raises the real question of what density do you have down there? If it can't all go there, which was the vision of the 1980 GMP, then you need to look at some alternatives. Still not losing sight of what you wanted to do.

Congress, here's what Congress did in 1989 in the way of creating new parks: Clara Barton Parkway, they expanded Everglades National Park which was a good deal, I can't complain about that, I helped do it. The Harpers Ferry addition, Harry S. Truman addition, Rocky Mountain was expanded, Ulysses S. Grant National Historic Site was established, Viet Nam Women's Memorial location.

These are supported by Congress and national conservation groups. These are again competition, and every time you add one of these, the effects are cumulative. What I guess I'm saying, it's time to realize that there's not an endless pot of money. I think what we've been saying over the past ten years is that we have to adopt as long term goals everything that's in the GMP. But we may have to say let's look at some



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interim steps because other than the east Valley closure, which happened years ago, we've been in sort of a paralysis around here. And the decision has to be made.

Are we going to stay in paralysis until someone delivers us a silver bullet train? Or are we going to look at some interim solutions still working towards the big picture? What I would like to see is the rhetoric cool enough to start working toward interim solutions, working towards the long range.

Q: When your report was first circulated, it was in August of last year, the deadline for response was pegged then in October. Then you announced the deadline was extended until January of this year. What do you suppose precipitated the extension?

A: Well, I was one of the advocates of the extension. I couldn't see any rush. It seemed to me that this has been characterized in the press, unfortunately, as an amendment process for the GMP, as a public process. It's nothing more, in my mind, than a scoping document. While it had its flaws and in retrospect could have been different, the report's intent was to have a conversation and say "here's some problems." The money's not there. Now what are

we going to do in the interim? Are we going to do anything in the interim? Let's talk about these things. What can be done? I felt there was nothing to be lost by extending the comment period and letting people comment, and everything to be gained.

Q: This transportation study that's referred to made by the Department of Transportation, what's the status of that document?

A: I've never seen it if there was one done by Transportation. We're doing one now, a transportation study, with consultants, which will look at in detail some of the aspects. Many people will say you don't need big buses coming in, use a fleet of little buses. But you know as they say, there's no free lunch. If you use littler buses, you need more of them. The farther out you put your parking lots, the longer time, the more parking spaces you have to have because of the down time that you lose in transit and in people enjoying the park and then coming out. You don't have the turnover, so to speak, so you need much larger lots. So you need to look at decibels, sound level standards, federal highway and state. So this has been contracted with a national firm in Colorado that

does transportation studies for states and others. That's in the works right now.

Q: Satellite parking was a great subject of discussion in the GMP, and the location of them at various places. Has any real effort been made to define these and get on with the project of satellite parking areas?

A: Well, this will be looked at a little bit in this transportation study, and I just looked at them again in Denver. That's why when I gave you that philosophy, that's one of the things that was made apparent to me, the farther you move your lots out of Yosemite Valley, the greater the cost for the bus and the operation system, and the larger parking lot you need because of that transit time and the down time.

The size of parking lots is directly related to turnover time. When you're dealing with something like Yosemite National Park and the visitors' divergence of interests from fishermen to bicyclists to hikers to backpackers and so forth, the turnover times can vary greatly based on personal preference and time and energy and all these factors. So they are a little more difficult to deal with, but they need to be dealt with.

The size of the buses needs to be dealt with. Long-term, you need to look at alternative fuels—5,000 diesel buses may not be the answer. There's some down sides to all this.

Q: About busing visitors into the park, the report states that it would be an expensive undertaking that couldn't be federally funded. Isn't it possible, assuming that everything else fell in place, that a private bus company would be delighted to haul people into the park?

A: It may be. It may be that you provide an opportunity to license that kind of activity, and that it is bid on like a concession. That's something that we'll certainly look at.

Q: The day visitor and his car, it seems to have been made the villain in this traffic congestion problem. If this is the case, doesn't this present a more valid reason for a vigorous hunt



KIM GREEN

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for satellite parking?

A: Yes, that's true. One of the things that I haven't totally explored yet, and sometimes these decisions that are made have some political stuff behind them, and that is, in the 1978 draft of the plan, the Park Service said we'll remove 1,000 parking places from the east Valley and we're going to build a 700 car parking lot at Taft Toe. That was the trade off. And then Director Whalen said, oh no, I'm not going to build a parking lot at Taft Toe.

So that was cut out of the plan, but the 1,000 car place removal was left in. So what happened was the Park Service proceeded to eliminate 1,000 parking places and isn't there yet, and we haven't got any alternative. No transportation system or no alternative parking. So what you've done, is on the one hand you've done part of the prescription, and then you wonder why it's crowded. If you run out and put boulders in all the parking places, and then shake your head and say well why is it crowded, well, I can tell you that.

Q: In recent years when the traffic congestion reached a point where you thought it was unreasonable, you restricted travel into the Valley which was a noble scheme. Do you consider this an ongoing formula?

A: We'll still do it. That's an ongoing formula. It's plugged into our traffic management plan that is in effect and will remain in effect.

Q: Is it likely you'll take steps to reduce it further?

A: It's so costly for us. It's tremendously costly. It's personnel intensive. At a time when we don't have a horse patrol and we're cutting back on interpreters, it just breaks my heart to say we're going to have people out on roads directing traffic. When they're not doing primary visitor contact. To the extent that we'll follow the existing traffic management plan, to implement it further means longer hours and more acrimony. It's not probable we'll reduce it any more.



NIKI PHOTO

Q: You have been given charge of a park that has some controversial clouds hanging over its head. Were you aware of these when you chose to come to Yosemite.

A: Yes I was, and I have been no stranger to controversy. I found myself in a position in the Everglades of leading the Park into a major lawsuit, suing the State of Florida and the South Florida Water Management District. We accused them of delivering water to us that was in violation of state water control standards damaging the park's ecosystem. This brought great controversy from the sugar cane growers and agricultural interests, a billion dollar industry in Florida.

I had arguments concerning endangered species — whether we were going to manage endangered species or farm for them, whether we were going to have national parks or deer reserves for

Florida panthers. I was involved in controversies over Florida Bay and the protection against offshore oil drilling. And controversies with the local tomato farmers over water draw-downs to benefit those green cardboard tomatoes you get in the winter here and whether we would damage Everglades National Park. I was at a point where we had brought many of those things to closure.

By the way, we were in a tremendous battle with the Pentagon over turning Everglades air space into a training area — we won that one. So I was at a point where it was probably appropriate to change personalities, bring a new person in to say, well we've done these things, now we need to hold the ground, and let's change the personal demeanor of the manager.

I'm not so sure I'm going to relish all the controversies at Yosemite,

I would have liked to have had a rest, but it's different. The best thing about this, though, is that no one seems not to care.

3.4 Million Visitors in 1989

Visitation to Yosemite National Park increased three percent last year, Michael V. Finley, Park Superintendent, announced recently. Finley said that 3,429,619 visitors enjoyed time in the park in 1989. That was an increase of 95,692 over 1988's total of 3,333,927.

Approximately 70 percent of Yosemite's visitors are from California and the average visitor age is 31. International visitors account for approximately 20 percent of park visitation.

Evolution of the Tuolumne River

N. King Huber

Hetch Hetchy Valley and Yosemite Valley have been compared by many, including the eloquent John Muir. Muir tended to emphasize their similarities. In fact, he used "Yosemite" as a generic term and stated that "the Tuolumne Yosemite is a wonderfully exact counterpart of the Merced Yosemite." For each he emphasized their bold cliffs, waterfalls, and flat valley floors. In spite of this, the two valleys are quite different in one important way. The Merced River drops abruptly to Yosemite Valley at Nevada and Vernal Falls, as does Tenaya Creek at Pywiack Cascade. In contrast, the Tuolumne River drops more gradually over a longer distance into Hetch Hetchy Valley through the Grand Canyon of the Tuolumne, below a series of cascades west of Tuolumne Meadows. This difference can be attributed, in part, to differences in the glacial histories of the two valleys.

During each major glaciation, including the last, whose maximum was probably only 15,000-20,000 years ago, the Tuolumne canyon was filled to the brim with ice at least as far west as Mather, some 6 miles beyond Hetch Hetchy (Figure 1). Thus, Hetch Hetchy has been glacially scoured "recently." Yosemite Valley, however, has not been completely filled with ice for at least 750,000 years, the minimum age of the Sherwin glaciation (probably equivalent to Matthes' El Portal glaciation). The major excavation of Yosemite Valley, including the bedrock basin beneath the valley floor, had to have been accomplished by that time. Since then, the upper reaches of Yosemite Valley cliffs have been shaped by spalling rather than by glacial scour, leaving pinnacles that could not survive a valley-full glaciation and forming the recessed alcoves into which waterfalls such as Bridalveil now leap. For this reason Hetch Hetchy Valley is in many ways a



Figure 1, top. Diagram showing Tioga-age glaciers in the Tuolumne and Merced drainages. YV, Yosemite Valley.

Figure 2, below. Ancient channel of the Tuolumne River exposed along the western bank of Piute Creek at Rancheria Mountain. The river

"fresher-looking" glaciated valley than Yosemite Valley, which long has been considered a classic glacially-carved valley.

These differences probably helped to stoke the Muir-Whitney confrontation. Yosemite Valley, in spite of its profound glacial modification, is not a good place for

flowed westward away from the viewer into the V-shaped notch cut into granite. Stream gravel in the channel was later buried beneath volcanic mudflows. This ancient channel was first described by H.W. Turner, who took this photograph, about 1900.

visual evidence of glaciation. The Tioga (latest) glacier reached only as far as Bridalveil Meadow, where it deposited a relatively inconspicuous terminal moraine. No lateral moraines could survive, because they were against the precipitous valley walls and were quickly eroded. Easily accessible

outcrops with glacial polish and striations are scarce. This paucity of direct evidence is probably the basis for Whitney's stand against the glacial origin of Yosemite Valley, noting as he did, the glaciation of Hetch Hetchy Valley, where he described glacial polish at least 800 feet above the valley floor and lateral moraines 1,200 feet above the floor on the upland beyond the valley rim.

A recent study of the late Cenozoic evolution of the Tuolumne River (Reference 1) reveals more details about the development of the two rivers, as well as about the geomorphic development of the Sierra Nevada itself. The uplift and westward tilt of the range was underway by at least 15 million years ago (Reference 2), and the steepening stream gradients accelerated canyon incision. During this time, volcanic eruptions in the Sierra north of Yosemite buried the drainages of west-flowing streams with volcanic debris, and the rivers were forced to cut new courses to the Central Valley.

About 10 million years ago, some of this volcanic material, chiefly volcanic mudflows, flowed south past the present drainage divide from the Stanislaus into the Tuolumne drainage basin. This material entered the ancient Tuolumne channel near Rancheria Mountain and flowed westward within that channel.

Most of this material has since been removed by erosion, but remnants permit us to document the location of the ancient channel and reconstruct its subsequent history (Figure 3). The river was forced to shift laterally southward around the volcanic "dam" near Rancheria Mountain, and cut a new channel next to the volcanic infilling.

Because the volcanic material did not overflow the valley of the ancient Tuolumne, as it did with rivers further north, the present channel follows the ancient one fairly closely.

One of the most convincing displays of the ancient channel is

on Rancheria Mountain west of Piute Creek (Figure 2). Here volcanic mudflows in the ancient channel overlie stream gravel that contains pebbles of metamorphic rock derived from as far east as Mount Dana. These pebbles indicate that the Tuolumne River was draining approximately the same headwaters 10 million years ago that it does today.

Ten million years ago, an ancestral range of hills occupied the present site of the Sierran crest, and, although of relatively moderate relief, it was a barrier to westward drainage even before late Cenozoic uplift. At that time, the San Joaquin River was apparently the only river flowing westward across the part of this range that lies south of Sonora Pass. The drainage of this ancient San Joaquin River evidently never extended east of this range of hills. Neither the reconstructed Tuolumne channel nor its deposits in the Sierra or in its alluvial fans in the Central Valley indicated or even suggest a source east of the present range.

Although the Tuolumne River apparently never headed east of the present range, one of its forks

may have headed east of Tioga Pass. The trough containing Tioga Pass trends north-south and nearly aligns with the valley of the upper part of Lee Vining Creek and Saddlebag Lake (Figure 5). A profile down this upper creek and through the trough of Tioga Pass dips only 500 feet below the pass, and the pass itself contains an unknown thickness of glacial till. If upper Lee Vining Creek once drained south through Tioga Pass, it was subsequently captured by the main trunk of Lee Vining Creek during its headward incision, possibly aided by a glacier or glaciers flowing eastward over a saddle in the former crest, and the route over Tioga Pass would have been abandoned. Before this capture, the Sierran drainage divide would have been a few miles east of the present one between Mount Dana and Excelsior Mountain, following a belt of resistant metamorphic rocks over Dana Plateau, Tioga Peak, and Tioga Crest (Figure 5). The present abrupt drop of Lee Vining Creek below Ellery Lake takes place at the eastern edge of this metamorphic belt.

The San Joaquin River was a

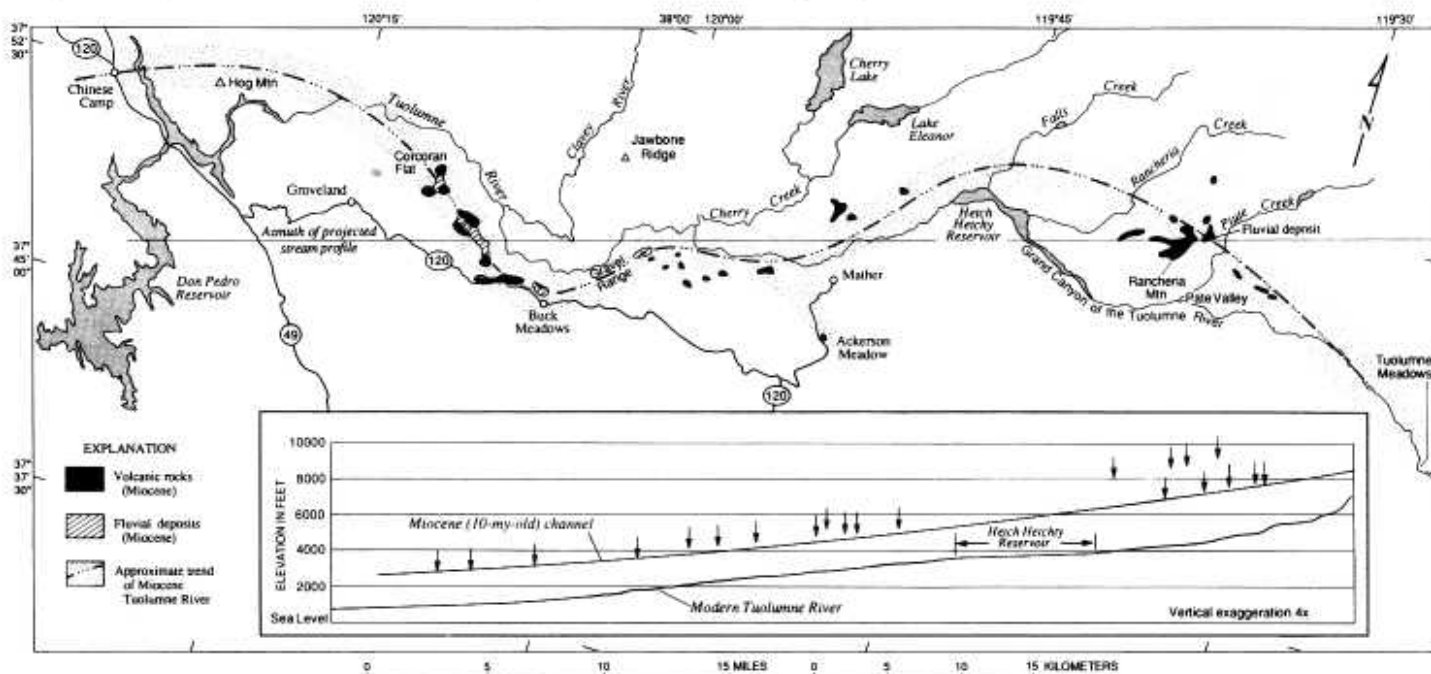
sufficiently large river to maintain its course across the rising Sierra, until it was cut off by volcanic activity about 3 million years ago. As a result its present channel is deeply incised right up to the Sierran divide. In contrast, the Tuolumne River is deeply incised eastward only to a point several miles west of Tuolumne Meadows. From there eastward to the Sierra crest the river meanders through upland meadows and up the broad low-gradient Lyell and Dana Forks. With no trans-Sierra drainage, uplift-induced incision of the Tuolumne channel proceeded headward from the Central Valley; major incision has not yet reached Tuolumne Meadows.

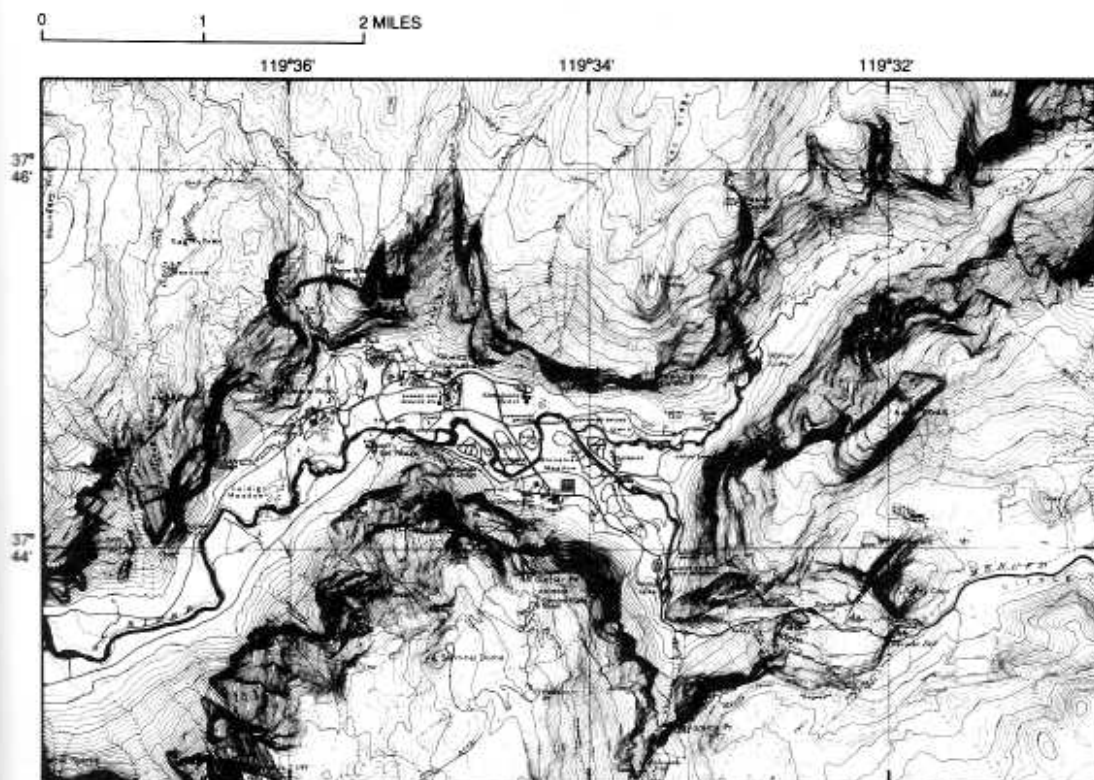
In the preceding discussion of the evolution of the Tuolumne River system, emphasis was placed on the main trunk of the river that heads in its Dana and Lyell Forks — an area critical to Schaffer's recent postulate (References 3 and 4) of past trans-Sierra drainage at this location. Schaffer proposed that a Tenaya "River," existing since early in the Eocene, originated from lands east of today's range and flowed through

the sites of today's Tioga Pass, Tuolumne Meadows, Tenaya Lake, Tenaya Canyon and Yosemite Valley. He further suggested that the headwaters of this Tenaya River were subsequently captured by the Tuolumne River at Tuolumne Meadows "about one-half to one-quarter million years ago." If the history of the Tuolumne River that I have sketched is correct, then there never was a trans-Sierra drainage through Tioga Pass, and at 10 million years ago the Tuolumne River was already draining the Mount Dana area.

Comparison of present-day stream profiles argues further against the concept of a Tenaya River. The part of the Merced drainage basin (including Tenaya Creek) that drains into Yosemite Valley is about half the size of that part of the Tuolumne basin

Figure 3. Ten-million-year-old (Miocene) volcanic and fluvial deposits in the Tuolumne drainage basin and reconstruction of the ancient stream channel. Inset shows longitudinal profiles of modern and reconstructed Miocene channels projected onto a southwest-northeast line. Arrows indicate control points.





that drains into Hetch Hetchy, and the distance to its drainage divide and its discharge are proportionally smaller. Thus, the Merced would be expected to develop a less mature (steeper average gradient) stream profile than did the Tuolumne over the same period of time, and before modification by glacial erosion. That this is the case is illustrated where parts of the longitudinal profiles for the present-day Merced River (and tributary Tenaya Creek) and the Tuolumne River are compared. The inferred average profile of the pre-glacial Merced River is also indicated.

The most obvious anomaly on the Merced profile is the "glacial staircase" formed by Nevada and Vernal Falls just east of Yosemite Valley. There is little doubt that the present form of these steps resulted from differential glacial quarrying of granite that was highly fractured along major joint systems that were downstream from areas of more massive resistant granite, in the manner envisioned by Francois Matthes. Less obvious, because it is concealed, is the glacially excavated bedrock basin beneath Yosemite Valley, which to some degree is an extension of the staircase.

A northeast-trending joint set dominates the Yosemite Valley region (Figure 4). It is not only strikingly displayed at such features as Nevada Fall and the elongate Half Dome, but also provides directional control for segments of Tenaya Canyon, Yosemite Valley, the Merced Gorge (downstream from Yosemite Valley), and several tributary creeks. A northwest-trending joint set, displayed at Vernal Fall, also provides control for segments of Yosemite Valley. The pre-glacial channel of the Merced presumably was influenced by these joint sets, but flowing water does not have the excavating power of glacial ice, and its profile would have only relatively minor perturbations reflecting differences in stream erodability of the bedrock.

Tenaya Creek drops abruptly down Pywiack Cascade into Tenaya Canyon before joining the Merced River at the head of Yosemite Valley. Matthes contrasted the narrow, deep Tenaya Canyon with the wider but shallower Little Yosemite Valley on the Merced River just above Nevada Fall. He attributed the geometry of Tenaya Canyon to glacial excavation of a zone of fractured rock along a major

Figure 4. Joint-sets control the orientation of physiographic features in Yosemite Valley. Shown here is part of the topographic map of the valley by Francois Matthes (1907), whose treatment emphasizes linear and planer features more graphically than does the modern version.

joint set; the lower, deepest section of Tenaya Canyon is parallel with the prominent, northeast-trending regional joint set. This interpretation has been challenged by Schaffer (References 3 and 4), who downplays glacial excavation relative to preglacial stream incision of Yosemite Valley and Tenaya Canyon. He does not believe that "such a small stream, the Merced River," could accomplish the amount of preglacial incision in Yosemite Valley that his supposition requires and, therefore, proposes his trans-Sierra Tenaya River to have existed until less than a million years ago in order to excavate the valley.

The stream profile for Tenaya Creek, however, has a low gradient for only about one and a half miles above its junction with the Merced River. It then climbs rapidly to rise above the profile of the Merced River only four miles above the junction, and in a little more than five miles is 1,400 feet

What Next?

Alan Bedwell of the NPS Western Regional Office reports that much additional work and study will be done before any "action items" come out of the Examination Report process. At this time, NPS staff is preparing a synopsis of the public comments received setting out substantive suggestions and ideas for use in further evaluation of the 1980 GMP. At last count, 4,433 letters had been sent to the Park Service along with over 14,700 post cards which were prompted by a mailing undertaken by the Yosemite Park & Curry Co.

Analysis of the letters alone should be a major task and could take considerable time. When the synopsis is complete, it will be printed along with a compilation of the Curry post card results. The National Park Service is shooting for late spring as a time to release this material.

Further steps in the process are still not certain. Before any final decisions are made, the NPS wants to complete a series of studies that are now underway. Those include a park housing study and accompanying environmental impact statement, water availability studies at Wawona and El Portal, and a housing density study for El Portal. Of primary concern is the matter of putting more people and development in El Portal. Service officials want to learn if there's adequate water, whether everyone will fit, and what housing densities would be required. Whatever the studies show, there will undoubtedly be opportunities for additional public input on all aspects of the General Management Plan and Examination Report. Interested persons should not expect any news from the National Park Service about what comes next before the end of summer, and the process could take much longer than that.

higher in elevation than the profile of the Merced.

This, and other evidence presented above, suggests that throughout late Cenozoic time, Tenaya Creek has been tributary to the larger Merced River and has not had a significantly larger drainage basin that it has now. Matthes' explanation for the depth and orientation of Tenaya Canyon, through the guidance of glacial excavation along joints, still seems reasonable.

I conclude that the geometry of the longitudinal stream profile of the Tuolumne River from Hetch Hetchy eastward reflects preglacial stream erosion, moderately modified by glacial erosion, mainly in the reach of the cascades below Tuolumne Meadows. In contrast, the very anomalous profiles of the Merced River through Yosemite Valley and eastward, and that of its tributary Tenaya

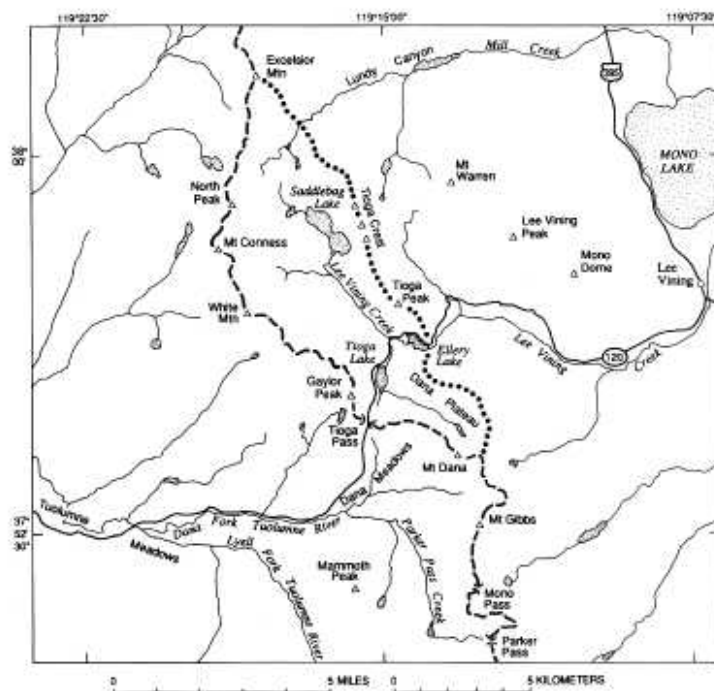
Creek, are almost entirely the result of glacial excavation.

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N. King Huber is a Research Geologist with the U.S. Geological Survey, and has mapped and studied the geology of the central Sierra Nevada for more than 30 years. He is the author of the book entitled "The Geologic Story of Yosemite National Park."

Figure 5. Tioga Pass area showing postulated earlier drainage divide (dotted line). Before capture by Lee Vining Creek, the basin containing Saddlebag Lake might have drained south through Tioga Pass to the Tuolumne River. Present drainage divide shown as dashed line.



Research Grant Decisions Announced

The Board of Trustees of the Yosemite Association recently announced that it had approved funding of just more than \$30,000 for five new research projects to be undertaken in 1990. Each project will be under the supervision of the research program of the National Park Service which helped in the selection of grant recipients. This is the third year that the formal "grants program" of the Yosemite Association has been operative.

As in the past, the research subjects widely vary. For example, M. Kat Anderson will be conducting ethnographic research on fire-based management of the sequoia-mixed conifer forest of the Yosemite region as practiced by the North Fork Mono and the Central Sierra Miwok Indians. She hopes to survey a number of Indian households to document historical burning practices, document specific vegetation management practices, and record the cultural purposes for using burning and other practices.

A pilot project to monitor Yosemite's avian life over the next three years will be undertaken by David DeSante of the Institute for Bird Populations. Through constant effort mist-netting during the breeding season, DeSante hopes to provide annual estimates of the productivity, survivorship and population levels of common

landbirds in the park. He will then see whether the methodology can be applied in other national parks.

Lovers of the esoteric should watch for Laurie Luedtke's report on her study of ecotypic variation and phenotypic plasticity in native perennial bunchgrasses which occur over a wide altitudinal range. Important for purposes such as meadow restoration, the research will try to determine the extent to which conservation and preservation of genotypes of native species are desirable and necessary.

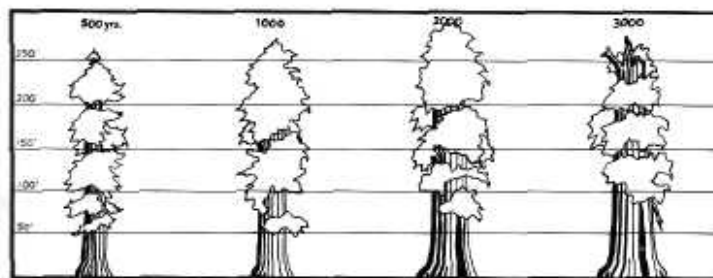
The American Indian Council of Mariposa County received a grant to create a modern Indian cultural exhibit to portray the contemporary traditions of the Southern Sierra Miwok and other tribal groups of the Yosemite region. The exhibit will be designed to enhance cultural education and interpretation in Yosemite. Themes will include basketry, stories and songs, wild foods and general crafts.

The final approved project will provide for the entering of Yosemite rainfall station site data into the park research database. Standard S language statistical commands and graphical presentation techniques are to be utilized to portray these rainfall data sets on a demonstration basis. This work will be undertaken by Richard Rodgers.

The Yosemite Association is delighted to be able to assist these scientists and researchers with their work, and to add to the body of knowledge about Yosemite.

Summer/Fall Field Seminar Preview

This is the preview list of the upcoming summer/fall field seminars being offered by the Yosemite Association for 1990. Enrollments, however, cannot be accepted until the mailing of the seminar brochure in April. Dates are fairly firm, though some may change. If you have any questions, contact the seminar coordinator at (209) 379-2321.



Come to Spring Open House!

Circle Saturday April 21st on your calendar for the YA Spring Open House! In the past, the Open House has been a chance for members to get a behind-the-scenes look at Yosemite through a variety of talks, slide shows and other presentations. Although still in the planning stage, this year's program will have an historical emphasis to commemorate the Park's Centennial Celebration. Margaret Sanborn, author of *Yosemite: Its Discoveries, Its Wonders, Its People*, will join us to tell tales of some of the Park's colorful early settlers, and the Park historian, Jim Snyder will present one of his popular slide shows on wilderness history.

In addition, Louis Smaus will treat members to a program on stereographic photography which accomplishes two tasks at once:

presenting a history of 3-D photography and capturing wonderful moments of early Yosemite life and scenery. "The Human History of Yosemite: A Centennial Perspective," will be the title of this year's talk by the Park's Archaeologist, Scott Carpenter. There are more presentations planned, and it is hoped that the new Superintendent, Michael Finley, will be available to speak to members and answer questions.

Registration for the day long event will occur Saturday morning in front of the East Auditorium which is located behind the Visitors' Center. Details will follow in a letter to members giving specifics on reserving rooms for the weekend. For more information or assistance, call Holly or Gail at 209-379-2317.

April 21 is also John Muir's birthday, and Earth Day is the following day. There will be other activities in the Park in connection with those events. Come join us for the festivities!

Alpine Botany *Botti*
Introduction Yose. Nat.Hist. *McGehee*
Forests of Yosemite* *Fry*
Geology of Yosemite* *Sloan*
Geology of Yosemite Valley* *Parker*
Tuolumne Wildflowers* *Fry*
Grasses & Sedges* *Sharsmith*
Two Saturday Walks *Sharsmith*
Insects in the Nat. World *Koerber*
Life at the Top *Ross*
Meadows of Yosemite* *Fry*
Subalpine Botany* *Fry*
Stars* *Oriti*
Giant Sequoias *Shenk & Hutchinson*
Universals* *Fry*
Plants & Arrowheads *Carpenter/Anderson*
About Calif. Indians* *Ortiz*
Ethnobotany* *Fry*
Natural Study for Elem. Teachers* *Ross*
Animal Ecology *Brubaker*
Bird Banding* *Rigney*
Beginning Birding *Ross*
Intermediate Birding* *Winter*
Wildlife Photography *Frye*
Jeff Nixon Photography
Photo Basics for Snapshooters *Moon*
Tuolumne Wildflowers Photo. *Weamer*
Photography Habitats *Weamer*
Photo/High Country Landscape and Wildflowers *Wilson*
Alpine Drawing/Backpack *Thrams*
Ben Kudo Watercolor Workshops

Larry Eifert Painting

Literary Naturalists Workshop
Tidwell
Family Backpack *DeWitts*
Family Backp. (with young child.) *Ross*
Family Day Hikes—Tuolumne *Moon*
Family Fishing *Rice/Baggett*
Creative Eye for Seniors *Tuolumne/Wilson*
Women's Backpack *Strong-Aufhauser*
Women's Backpack *Swedo*
North Dome Skywalk *Moon*
Yosemite Creek BKP. *Moon*
Vogelsang Beginning Backpack *McGehee*
Buena Vista Lake *Moon*
Over the Divides—Fall Backpack *Ross*
Munson-Burley Backpack
Young Lakes Backpack *Ross*

July 30–August 3
July 30–August 3
August 19–24
August 13–17
July 27–29
July 4–6
July 23–27
July 14 & August 18
August 30–Sept 2
July 23–27
July 30–August 3
August 6–10
July 15–19, July 22–26
September 10–12
July 9–13

June 15 (eve)–17
August 17–19
July 15 (eve)–20
July 16–20
August 11–13
August 3–5
July 6–8
June 21–24
July 20–22 & Oct 12–14
August 25–26
July 28 & Aug 1 & 18
August 4–5
July 12–15

July 27–29
August 11–15
July 15 (eve)–19
August 19 (eve)–23
October 25 (eve)–28
July 23–26 Tuolumne
October 25–28 Valley

July 9 (eve)–13
August 17–19
July 6–8
August 3–5
July 6–8 & Aug 25–26

Sept 10 (eve)–13
July 27–29
July 13–16
August 12–13
July 6–8

August 4–6
July 18–22
September 8–13
August 5–11
August 18–20

*indicates that the course is offered for college credit.

Stories in the Snow

Tory Finley

In 1874, John Muir was walking toward the Sierra along a sandy road, gazing at the beveled furrows created by passing wagon wheels. In a letter to a friend Muir wrote, "Upon the smooth slopes of these sand furrows I soon observed a most beautiful and varied embroidery, evidently tracks of some kind . . . a tiny lizard darted into the stubble ahead of me and I carefully examined the track he made . . . I was excited with delight in seeing an exquisitely beautiful strip of embroidery about five eighths of an inch wide, drawn out in flowing curves behind him as from a loom . . . I glowed with wild joy . . . and strode away with my own feet sinking with a dull crunch, crunch, crunch in the hot gray sand . . ."

As Muir's description suggests, tracks hold a compelling fascination for some people. I know that fascination well. Until I became the Tuolumne Meadows Winter Ranger I couldn't really understand how certain animals could live, actively, in the high Sierra in mid-winter. All animals leave their signatures in the form of tracks wherever they go, but in winter because of the snow, these signatures are clear, defined stories waiting to be read. Once I became aware of all the tracks, I realized that many of the animals actually come alive in winter. With the hordes of people gone the animals come out of hiding and are free to run anywhere, day or night, depending on their habits.

To be able to read an animal's story in the snow, it is essential to know how to decipher and understand its language. No two tracks or sets of tracks are the same. Yet, there are similarities in track shapes and patterns that make it relatively easy to classify them into family groupings. Once you've done this, species identification is usually just knowing what is found in the area or taking accurate measurements and



NPS PHOTO



NPS PHOTO

A bobcat watches for prey.

Overlapping tracks in the snow.

matching them with the averages for a particular member of that family. The joy of tracking comes alive when the track identification is completed and the animal's individuality and activities can be discovered.

Knowing how animals generally move helps considerably

when trying to decipher a track and an animal's purpose and mood. Most of the time you'll find tracks made by an animal moving at its normal slow rate of speed. By knowing what is "normal" you can start to figure out what an animal is doing when a track is "abnormal." There are four very different gaits, and each one leaves a characteristic track pattern. The four traits are:



Diagonal Walkers. This includes all the dogs, cats and hoofed animals. These animals walk just like you cross-country ski using the diagonal stride technique, moving limbs on opposite sides of the body at the same time. As the right front foot moves forward, so does the left rear foot and vice versa.



Pacers. This includes all the wide-bodied animals: bear, raccoon, opossum, skunk, wolverine, badger, beaver, porcupine, muskrat and marmot. These animals find it easier to move both limbs on one side of the body at the same time, instead of diagonally. These are the lumbering animals, moving both right legs, then both left.



Bounders. This includes most of the long-bodied, short-legged animals — most of the weasels (wide-bodied weasels such as the skunks, badgers and wolverines are pacers). Bounders move by reaching out with both their front feet and then bringing the back feet up just behind the front. Sometimes the back feet are placed directly in the front prints.



Gallopers. This includes all rabbits, hares and rodents (wide-bodied rodents such as the beaver, muskrat, marmot, and porcupine are pacers). As these animals move, they push off with their back feet, hit with their front feet, and bring their back feet all the way through to land in front of their front prints. An interesting point on the gallopers is that, in general, if their front feet hit side by side they are normally tree dwellers (red squirrels, gray squirrels, etc.), and if their feet hit on a diagonal they are normally ground dwellers (rabbits, Belding

and golden mantled ground squirrels). The same is true for birds. Tree dwellers (woodpeckers, sparrows) hop on both feet at the same time, while ground dwellers (ptarmigan, quail) alternate footsteps in a walking gait. Birds that are equally at home in trees and on the ground (robins, ravens) do a little of both.

Gait Variations

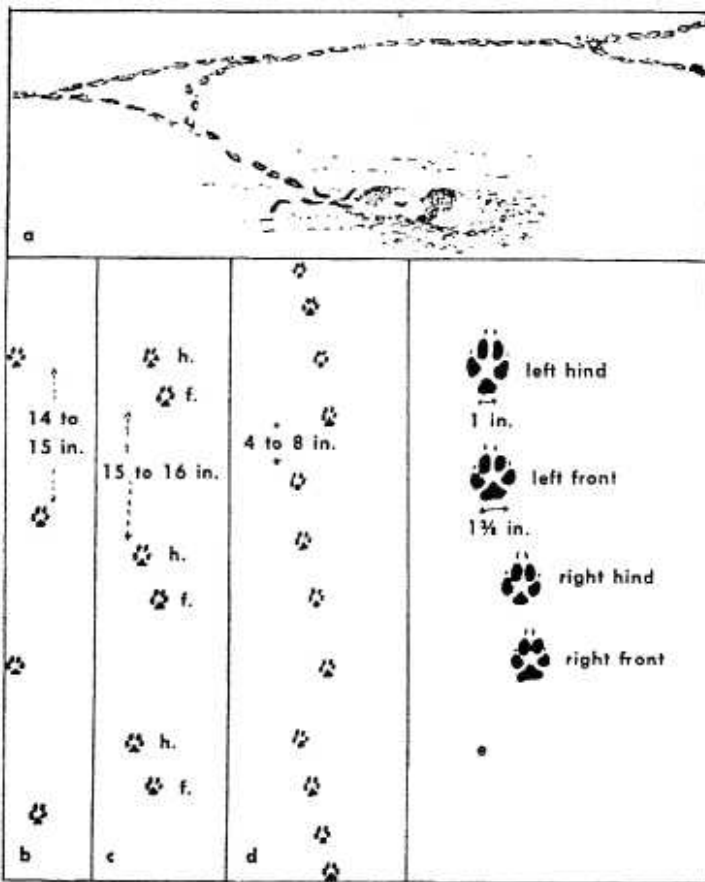
What happens when an animal picks up speed when chasing or being chased? Or when it slows, when stalking or defending? Or when it is traveling in very deep snow or on weak ice? There are some situations in which animals move at different rates of speed and these activities visibly affect their gaits.

When the diagonal walkers pick up speed they become bounders, then gallopers. For example, if a coyote is startled, it will probably move from a diagonal walk into a bound; but if it is truly frightened, or in hot pursuit of prey, it will run away at a gallop. Many a time I have been fooled by coyote prints thinking they were a white-tailed jackrabbit's. A hint at such times: when both animals are moving at a high speed, a coyote's front and back prints are closer together than a rabbit's, and the rabbit's two front prints are spaced farther apart from each other than the coyote's. Also, the coyote will leave more drag marks than the rabbit.

The diagonal walkers will also often use the trot between the bounds, and the lope between gallops, but don't let this confuse you. A coyote's print is easy to distinguish and your feel for the gaits will come with time.

Most pacers, as they pick up speed, move from pace into a diagonal walk and from that point follow the same sequence as the diagonal walkers — to a bound then a gallop.

Bounders rarely change their gait. You can tell their rate of speed by the distance between



The spot where a coyote took a slide.

sets of prints. For instance, if you see a weasel track that shows a typical bounding pattern every six or eight inches, you can assume it is moving at its normal slow gait. If the distance between double prints suddenly increases to a foot or more, you know the animal has picked up speed.

Gallopers rarely change their gait. Although a white-tailed jackrabbit may put down a set of prints every ten inches or so, with a coyote on its tail the distance between prints may jump to 15 inches or more. Learning the measurements of the animal's prints and patterns is invaluable when trying to understand the animal's moods.

Again, this information may be useful, not only for species identification but for reading an animal's actions. For example, the diagonal pattern of a fox would indicate a normal walk whereas the diagonal walking pattern of a

badger would indicate that the animal was in a hurry.

Unusual Gaits

When threatening or feeling antagonistic, almost all animals switch from their normal gait to a pace. Pacing makes an animal look broader and more imposing. You may have seen dogs who are feeling antagonism towards other dogs; they bristle the hair on their backs, hold their heads up high and pace, legs on the same side moving at the same time. Humans do it, too, moving one whole side of the body in a threatening swagger.

When stalking or moving with caution (fear of alerting a predator, moving across thin ice, etc.), most animals use a gait called the slow walk. The track pattern of the slow walk looks like a diagonal walk, but in movement it is about halfway between a diagonal walk and a pace. It works like this: first the right rear foot moves forward, and just be-

fore it comes down, the right front foot starts forward. Just before the right front foot hits the ground, the left rear foot starts forward. Just before this one hits, the left front foot moves forward and so on. The first time I saw a white-tailed jackrabbit "tiptoeing" in a slow walk around an unwary pine marten I had to chuckle.

Deep snow can cause animals to leave some unique patterns. For instance, coyotes and foxes, when traveling in deep snow, will direct register, putting their hind feet directly into their front foot prints, alleviating the need to make a whole new print. Most of the pacers, and even the diagonal walkers, will leave a trough made from their bodies in new snow. All animal tracks can appear much larger than normal in deep snow due to the angle of the leg sliding in and out of each print. Remember that old tracks can look very different in size and shape, and can be very misleading, once melted by the sun.

When a substantial amount of new snow has fallen, most animals stay put until the snow settles. I find few tracks for the first couple of days after a storm. But when they do appear it is a whole new lesson being taught on a clean new blackboard.

Once you step out into a snowy landscape, the stories are endless before you. If you open to the subtleties of a track you can see and feel what the animal's reactions were and its relationship with other animals. What I love to do is either sit or ski quietly through a forest or a meadow and wait for an animal to move about, then I go and look at its tracks, comparing how I saw the animal move to what I see in its tracks. By opening up, slowing down and really looking, there is no limit to the excitement, discovery and mystery you can uncover by tracking.

Tory Finley is the NPS winter ranger at Tuolumne Meadows where she has spent the past several winters with her husband, Brent.

Yosemite Viewpoints

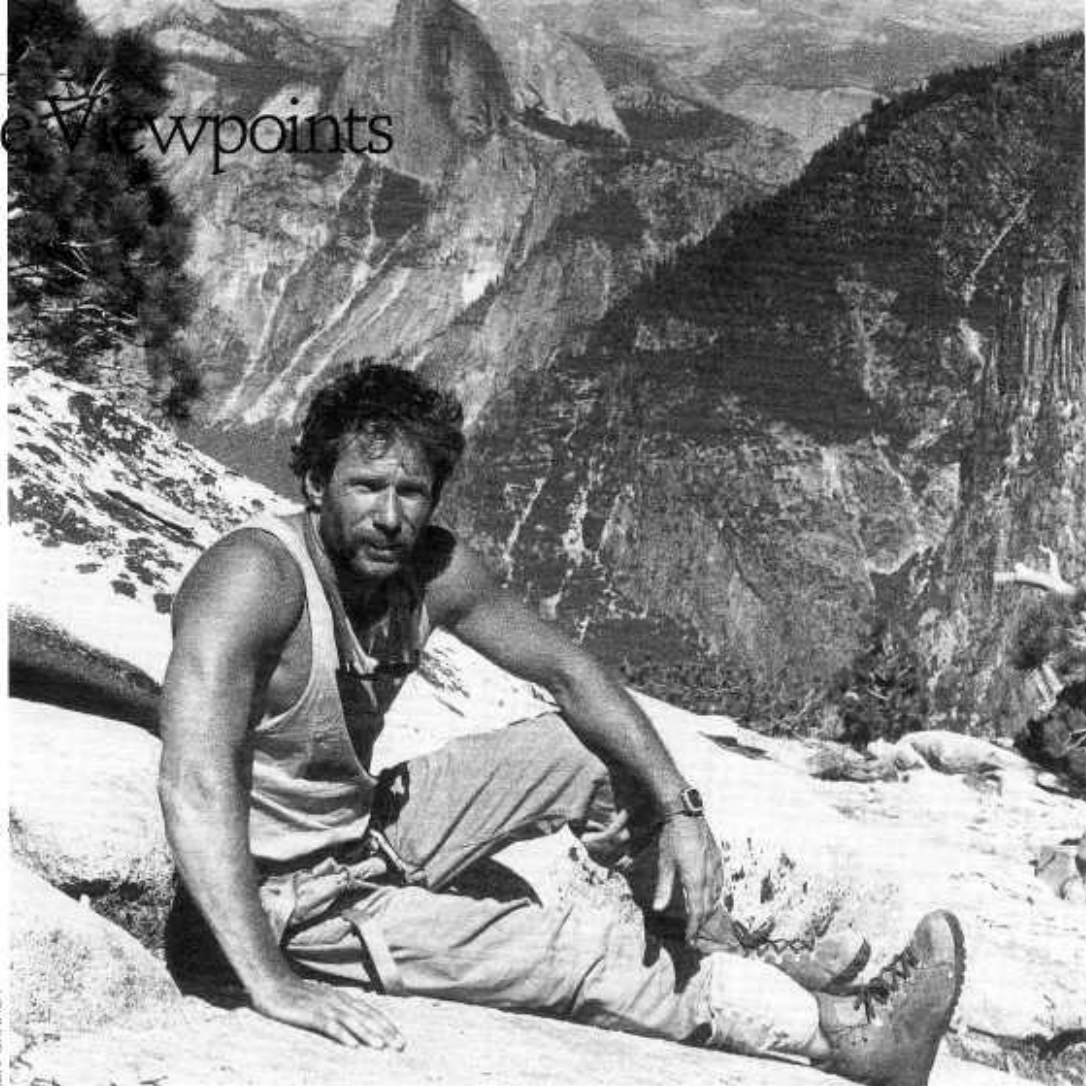
Seizing the Opportunity

I watched television as Ranger Mark Wellman made the first climb by a paraplegic of El Capitan. It is one of the purest examples of equal opportunity of which I am aware in the national park system. Nobody said to Wellman that he couldn't do the climb. He trained, according to the TV reports I saw, for a solid six months, gradually building his upper body strength to the point at which he felt confident that he could do the 7,000 or so pullups on his jumar system that would be required to finish the 3,500-foot climb, six inches for each pullup. What Wellman counted on was the principle that in the U.S. everyone has the opportunity to do whatever he or she wants to do.

This is 180 degrees from the theory, more prevalent today than in the past, that suggests people have the right to do whatever they want to do. An important adjunct to this theory is that since national parks belong to the American public, the National Park Service has the obligation to accommodate any kind of use. Proponents of this theory argue that everyone has the right to go to the bottom of the Grand Canyon; the Park Service, therefore, should build a tram to Phantom Ranch. Everyone has the right to go anywhere on Cape Cod, so the NPS ought to allow ORV's on the beaches.

These arguments are often made on behalf of older or disabled visitors, although one suspects that this is only a smoke screen for the high-tech, motorized recreational pursuits that many people seem to favor.

That is what makes Wellman's climb so inspiring. He didn't ask for any trams to the top of El Capitan. He got there—to quote the famous ad—the old fashioned way: he earned it, six inches at a time. His climb reminds me of other stories: disabled people rafting the Colorado through the Grand Canyon or taking overnight pack trips in Rocky Mountain by horse-



JEFF GRANDY

Mark Wellman at the top of El Capitan.

back; vision-impaired folks hiking the Appalachian Trail; mentally impaired individuals experiencing the satisfaction of taking care of the gardens on the Mall in Washington. These are all examples of people taking advantage of the opportunities that exist in the national park system. Despite the difficulties that faced them, they prepared themselves to seize the opportunities.

As a society, we regularly have said that not everyone has the right to do everything. We require students to study hard to achieve good grades before they enter our universities, because not everyone can go. Before we allow someone to drive on the nation's highways, he or she must pass both written and practical tests. Not everyone gets to drive. We have established these activities as special privileges, ones that require preparation prior to taking advantage of them.

In much the same way, visiting an area of the national park system is a privilege. Before

people take advantage of the special opportunities contained within the parks, they must prepare themselves. Often this will not require much effort; reading the brochure or looking at the park map will usually suffice. Some opportunities, however, will require much more preparation. Our responsibility is to assure that a range of activities exists within the parks for visitors depending on their willingness to prepare themselves.

Not everyone gets to do everything. Instead, everyone has the opportunity . . . to do everything. As Wellman said on the summit of El Capitan, "If you think you can do it, go for it."

Rick Smith
Albuquerque, N.M.

Thanks for the Help

Our new wilderness brochures just arrived, and they look great! This letter is to express our sincere appreciation for making this printing possible with funding from the Association. Thanks to your generosity, we were able to order an approximately 3 to 4 year supply.

The "Welcome to the Wilderness" brochure is our primary handout when educating each wilderness user. When a hiker obtains his/her wilderness permit, the person issuing the permit individually goes through the hiker's responsibility, minimum impact, and proper food storage, using the brochure as a basis. It is then attached to the actual wilderness permit, and given to the visitor with instructions to read it with all members of the party.

Also with funding from the Yosemite Association we printed at least a one year's supply of our primary informational handout entitled "Backpacking in Yosemite." We would like to include our appreciation for this assistance as well.

Your ongoing support of our efforts to inform and educate the public has been a tremendous help to us and to the wilderness. The results of these efforts provide long term benefits that we may never fully realize. Thanks once again.

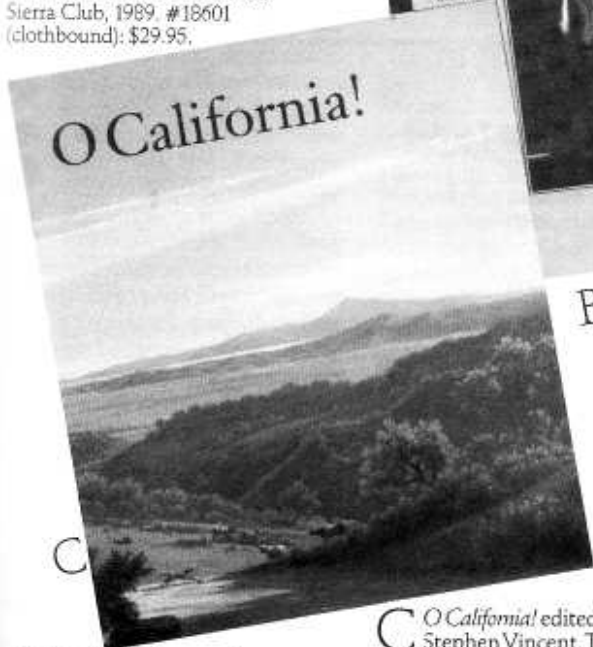
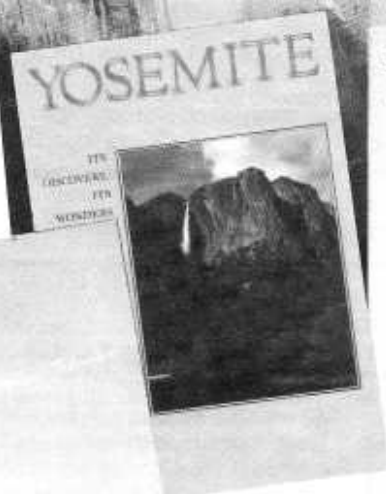
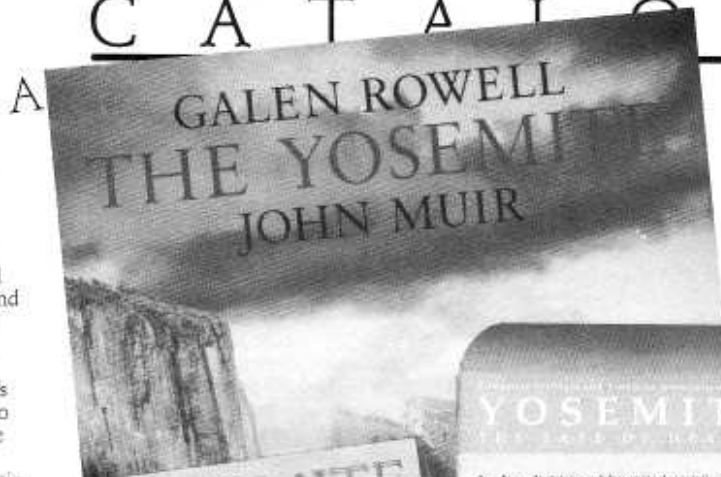
Laurel Munson, Ron Mackie
Backcountry Management
Office, NPS

THE Yosemite

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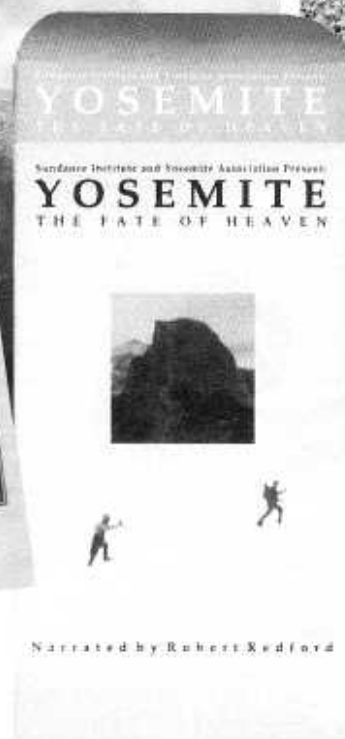


A *The Yosemite* by John Muir, illustrated with the photographs of Galen Rowell. For Yosemite's centennial year, acclaimed nature photographer Galen Rowell has assembled 101 of his superb full-color images and placed them alongside the complete text of John Muir's classic, "The Yosemite." The result is a powerful evocation of Yosemite's lasting beauty and a testament to the importance of preserving the world's most precious natural places. The book unites the artistic vision of the two principals; Rowell's photographs find inspiration in Muir's words, and Muir's text is enhanced by Rowell's photographs. Published in a "coffee table" size of 10" x 12" in a special Yosemite Association Edition, Sierra Club, 1989. #18601 (clothbound): \$29.95.



B *Yosemite: Its Discovery, Its Wonders and Its People* by Margaret Sanborn. This is a never-before-available paperback edition of an excellent historical study of Yosemite Valley originally published by Random House in 1981. Long out of print, the 300 page book was reprinted by the Yosemite Association to fill an obvious void in the Yosemite literature. The focus is on the people of Yosemite like John Muir, Grizzly Adams, James Mason Hutchings, Carleton Watkins and Frederick Law Olmsted. Eminently readable, "Yosemite" is a work of both love and insight. Yosemite Association, 1989. #835 (paper): \$9.95.

C *O California!* edited by Stephen Vincent. This sumptuous book showcases the work of painters and writers as they reacted to California and its landscapes from the days of the Gold Rush to the turn of the century. There are about 100 color plates of works by such artists as Albert Bierstadt, Thomas Hill, Virgil Williams and William Keith. Accompanying narratives are from the pens of writers like John Muir, Clarence King, Mark Twain and Joseph Smeaton Chase. Every region of the state is covered, and topics are both urban and rural. It's an impressive work filled with glimpses and insights of the California we



will never know again. The 300 page, large format book is 10" by 12" and published by Bedford Arts. #14295 (cloth): \$75.00.

D *Yosemite 1990 Centennial Calendar* by Dream Garden Press. This Yosemite calendar has become a favorite of YA members with its beautifully reproduced full-color images of Yosemite's landmarks and scenery. This special centennial edition features quotations from Carl Russell's classic "One Hundred Years in Yosemite," and includes the usual notations of the birthdates of notable environmentalists and Yosemite-philosophers. Sized in a 10" x 13" format with 13 large color photographs. If you haven't got a 1990 calendar yet, take advantage of this special price. #4180; regularly \$8.95. **Sale price: \$5.37.**



E *Yosemite: The Fate of Heaven* narrated by Robert Redford. This is the new video cassette produced by the Yosemite Association and Sundance Institute. The documentary takes a look at the many forces at play in Yosemite from the varied perspectives of rock-climbers, trail builders, rangers, visitors, backpackers, visitors and residents. What emerges is a compelling and thought-provoking work with high entertainment value. The color photography is stunning and captures Yosemite's moods in all four seasons. An original musical score adds immeasurably to the film, and all its elements combine to produce a remarkable vision of Yosemite past, present and future. Running time: 58 minutes. #1570 (VHS), #1571 (VHS/PAL): \$19.95.

F *Yosemite 1890-1990: The First 100 Years* by Shirley Sargent. This beautiful new book celebrates Yosemite's upcoming centennial as a national park. Utilizing large format color photographs and a first-rate text by local historian Shirley Sargent, this volume is handsomely designed and printed. Chapter coverage ranges from pioneer adventures to wildlife and geology. Yosemite Park & Curry Co., 1988. #19625 (paper): \$8.95. #19626 (cloth): \$15.00.

G Yosemite Association Cap. Complete your outdoor wardrobe with this trendy item from the Association collection! It's the perfect hat for a hot, sunny day in the great outdoors—mesh fabric to keep a cool head, a generous bill to shade your face, and adjustable strap in the back to insure a good fit for everyone. All of this plus the Yosemite Association patch to let everyone know what your favorite organization is! Brown with white accent. #1600, \$6.00.

K Pelican Pouch, *Wilderness Belt Bag*. The Pelican Pouch is not only perfect for carrying field guides, but also offers instant access to all the small items that are usually buried in your pack—pocket camera, lenses, maps, or your favorite trail mix! The Pouch is designed with front snap fasten-



ers on the straps. This allows comfortable positioning on your belt—even between belt loops; no need to take your belt off first. The material is high quality Cordura pack cloth with a waterproof coating on one side. Beige with the dark brown and white Yosemite Association patch, the Pelican Pouch measures 8 x 5 x 2 1/2 inches. #1690, \$11.95.

L Yosemite Association Decals and Patches. Our association logo, depicting Half Dome is offered to our members in these two



useful forms. Help announce your affiliation with our organization to others by purchasing and using Yosemite Association patches and decals. Patch #1635, \$1.50; Decal #1636, \$1.00.

J Yosemite Enamel Pin. Designed especially for the Association, our enamled metal pin is a work of art. Each of the 10 different glazes is hand placed and separately fired. The result, from William Spear Design, is an eye-catching and colorful piece. The metal enamel pins are relief engraved in a 7/8 x 2" size. #1695, \$11.95.

Vegetation Management in Yosemite: Healing The Land

Almost 3.5 million people visit Yosemite each year. That means nearly 7 million human feet are out there tramping over meadow and mountain, turning plants to dust. To combat this destruction and other threats to plant life, Yosemite has two permanent Resource Specialist positions responsible for vegetation management. These positions, however, have been vacant most of the year and the immense responsibility for restoring and protecting Yosemite's vegetation has fallen to temporary Biological Technicians Ben Alexander, Susan Buis, Richard Hadley, and Revegetation Crew Leader Marty Acree. Their efforts have restored native plants to closed campsites and rerouted trails in the Tuolumne area. They have also fenced and revegetated trails in Stoneman Meadow and an oak woodland in Yosemite Valley. Labor for these projects was provided by park service crews, YCC, CCC, the Sierra Club, and many other volunteer groups. A workparty assembled from NPS trail and fire crews has also planted newly-graded slopes along Big Oak Flat Road and are currently restoring more oak woodland in the valley near the

school. Much of the financial support for these projects has come from the Yosemite Fund.

The demands of revegetation have also drawn upon the horticultural skills of the staff. Thousands of plants have been propagated from wild stock and planted in trodden areas of the park. Plans call for the planting of nearly one million native trees, shrubs, forbs, and grasses in the next 10 years.

Alien plants are also a threat to Yosemite's natural ecosystem. They colonize areas of soil disturbance and can outcompete native plants. These invaders are battled year after year through programs of laborious hand-pulling by crews. A study is presently being conducted to determine the most effective way to remove thistle, one of the worst pests.

Yosemite's vegetation managers are additionally responsible for the protection of the 97 species of rare and endangered plants that are known to grow in the park. Preservation of these plants and the rest of the natural vegetation cover in the park requires managers to continually monitor construction and development projects for compliance with federal environmental laws to minimize and repair resulting damage to the landscape.

Yosemite is most noted for its geological formations, yet great value must also be placed on the thin and fragile layer of life that clothes the park. Preservation of this life in an unimpaired state is essential to perpetuate the natural ecosystem that is the spirit and soul of Yosemite. The labors of vegetation management in the park are aimed at this goal in the face of ever-increasing human impacts.

New Service for Members' Only

Planning a trip to Yosemite and curious about the weather or wildflowers or the opening of the Tioga Road? Give our Members' information phone line a call at 209-379-2317 between the hours of 9:00 am to 4:30 pm, Monday through Friday. We will not make any reservations for campgrounds or accommodations, but we can give advice and the latest phone numbers. We hope we can be helpful in planning your next visit to Yosemite.

Order Form Credit card orders call: (209) 379 2648 Monday-Friday, 8:30am-4:30pm

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Summer Volunteer Opportunities in

Summer's coming! Looking for a different way to spend time in Yosemite? Consider one of these Yosemite Association volunteer opportunities: staff the Museum Gallery, sign up new members at the Valley Membership Booth or in Tuolumne Meadows, or join one of the Work Trips.

Plans are still in process for the various programs, but anyone interested should write or call Gail or Holly for more information (209-379-2317). The membership volunteers usually sign up for a month or longer in the Park, staying in the campgrounds and splitting their days between the Museum Gallery and the Membership Booth. They usually work a 4-day week (for a grand \$6 a day stipend) and have 3 days to enjoy the surrounding beauty.

The YA Member Work Trips have grown increasingly popular, and this year we have scheduled three separate trips: **July 16-22,**



August 20-26, and August 27-September 2. Each trip will be based in a Tuolumne Meadows campground and tackle projects designed by the Park Service. Last year's volunteers worked on much needed revegetation in the Tuolumne area. Each group was made up of about 15 energetic members, and the Association provided leadership and food.

Both Yosemite Institute and the Yosemite Park & Curry Co. contributed valuable personnel and underwriting.

Tuolumne Volunteers

The Yosemite Association needs volunteers for the field seminar program's special use campground at Tuolumne

Meadows. As they'll be working with the public, the National Park Service, and Ticketron staff, volunteers need to be organized, good with people, and flexible! The positions require that volunteers be at the campgrounds during certain hours of the day when seminar participants are coming and going.

Volunteers will work six-week stints, and for their efforts will receive a stipend of \$6 per day, a free campsite, and the opportunity now and then to be included as a seminar participant (when space is available). It's a great chance to help this exciting program in Tuolumne. Six-week periods will start the end of June, with slots extending through the end of August.

If you're interested or need further information please write to the Seminar Coordinator, Yosemite Association, PO Box 230, El Portal, California 95318 or call 209/379-2321.

New Members

We would like to welcome to the Yosemite Association the following fine persons who became members within the past three months. Your support is greatly appreciated.

Regular Members

Ben Alexander, William & Susan Alexander, Maura Allen, Linda Amendt, Louise Baerresen, Colleen E Balch, Mrs Cynthia V Barnes, Richard Barnett, Sandra S Barnette, Nancy Barry, Daniel & Cynthia Beckel, Margaret & Donald Becker, Ric Belding, Mr & Mrs Allen Berrey, Jennifer Anne Bienn, Roger E Biery, Patricia Blanchard, Gary M Blazon, Chris Booker, Joseph Botsford, Louis J Brandt, Joan Brencley-Jackson, Barbara Buhlert, Ken Bunling, Sara Burnaby, John Calhoun, Lynn Carasali, Mr & Mrs Richard Carlson, Steve Centanni, Chuck Cherry Jr, Vicki K N Chung, Debbie & John Clark, Dennis Compton, Debbie & Kevin Conant, Raymond G Connors, Virginia Constable, Don N Cooper, Zanette A Comman, Gerald B Cox, Tom Cwik, Susan DeJmal, Anthony DePaola, Bill Dickey, Carl DiFeo, Tom & Mary Drennan, Robert Duley, John Ebinger & Larry Garthaus, Eugene Eckis, Thomas C Efrid, Linda Erhardt, Thomas C Escher Jr, Rebecca Evans, Bill & Jeanette Faulk, Greg Ferguson, Sharon Ferrante, Suzy Ferrante, Pewter & Monica Flessel, Louise Fletcher, Michael Fox, Carolyn J Frank, Fred O Furu-ichi, Charles T Gauronskas, Carlos & Leslie Genesta,

Larry Giacomino & Jill Forester, Michael D Goldman, Richard Graham, Nancy Anne Graves, Bonnie & Drew Grey, Barbara Groth, Cheryl Hagood, John T Hammer, Richard A Hamstra, Leonard & Joyce Hancock, Roxann Hanning, Cathy Hardeman, Carol Harmon, Ruth Ann Heidelberg, John P Hollinrake, Paul & June Holmes, Ted & Sue Hooker, Norine & Ray Hopper, Wendy L Howell, Herb & Cathy Iseman, Krist Jake, Sylwester & Gerta Jaworski, Mr & Mrs D H Jenner, Lottie Jenvey, Carol E Johnson, Mark William Johnson, Ronald Jorstad, Eva Juhos, Judith L Karliss, Florence Kaya, Delanie Kilduff, Janet King-Goth, Mary Kleinbach, Virginia & Earl Knechtel, Martha Kojima, Jennifer Krueger, Paul Kryloff, Allen Kuhlrow, Mr & Mrs William Kunz, Mr & Mrs W L Kyle, Stephen C Lama, Neuritsa Lancaster, Linda Land, Elizabeth & Daniel Leite, Judi Lewinski, Stuart Linsley, Richard Lui & Tamsen Taylor, Virginia A Lyon, James Lee Lytton, Michael & Jayne Maira, Ari Marcus, Linda Martin, G Mathey, Elaine Mazer & Michael Velkoff, Donald McBride, Barbara McCoard MD, Barbara & Richard McEvoy, Barbara McKinstry, Calvin Mehlert, Mary & Fred Merrill, Arthur Michel, Linda Mitchell, George W Mitzner, Dick Moe, Don Monson, Diana Morrow, Tim Mössteller, Suzanne Murphy, Winnie W Nelson, Glen Nichols, Laurie A Nichols, Mr & Mrs Brian Nicholson, Tom Nicholson, William & Patricia Norin, Tom & Jul-An O'Connor, Thomas J Osborne, Donna Pardon, Jim Phillips, Jill Phinney, Richard Pinn, Michael J Pope, Ann L Preston, Jane E Preston, Annie P Prothin, Bob & Gail Ptacek, The

Trust for Public Land, George P Radanovich, Ben Roberson, Lewis Rogers, Mr Lynn Rogers, Nancy Rosasco, John & Anne Rose, Richard Rush, Charles R Ryan, Norman Saltnes, Natalie C Schwartz, Henry Sefchik, Bob Segal, A Michael Sevilian, Barbara Shaw, James Shea, Chris Sienes, Allan Silberhartz, Douglas Simeroth, Barney & Sarah Sisco, Jane Sisco & Liz Keegan, Pete Sison Jr, Brooks & Cherie Smith, James A Smith, Anne C Spencer, Rod Sprvill Jr, Michael Staced, Ken & Pat Stackhouse, Marion Stav, Audrey Stevens, Clayton & Karen Clark Stone, Ruth Strand, George Strauss, Eve & D A Suta, Wendy Swenson, Lorna Tanner, Mr & Mrs Trent Thompson, Lane & Julie Thomsen, Betsy Tompkins, LouAnn Torres, Vladimir Triffin, Scot Turner, Nanette Uribe, Larry Velasquez, Jon Brian Kinney Wash, Diana Weber, Jonathan Welch, Jan & Lynn Wiese, The Wile Family, Bruce Windsor, David R Wood, Alan E Wulzen, Warren & Diane Wulzen, Everett & Jean Yoder

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Yosemite Association

Join the Yosemite Association

You can help support the work of the Yosemite Association by becoming a member. Revenues generated by the Association's activities are used to fund a variety of National Park Service programs in Yosemite. Not only does the Yosemite Association publish and sell literature and maps, it sponsors field seminars, the park's Art Activity Center, and the Ostrander Lake Ski Hut.

A critical element in the success of the Association is its membership. Individuals and families throughout the country have long supported the Yosemite Association through their dues and their personal commitments. Won't you join us in our effort to make Yosemite an even better place?

Member Benefits

As a member of the Yosemite Association, you will enjoy the following benefits:

- ★ *Yosemite*, the Association bulletin, published on a quarterly basis;
- ★ A 15% discount on all books, maps, posters, calendars and publications stocked for sale by the Association;
- ★ A 10% discount on most of the field seminars conducted by the Association in Yosemite National Park;
- ★ The opportunity to participate in the annual Members' Meeting held in the park each fall, along with other Association activities;
- ★ A Yosemite Association decal; and

★ Special membership gifts as follows:

Supporting Members: A selection of 8 handsome notecards (with envelopes) featuring beautiful photographs of Yosemite;

Contributing Members: Full color poster of Yosemite's wildflowers by Walter Sydorak;

Sustaining Members: A colorful enameled pin depicting a Yosemite waterfall by William Spear;

Life Member: Matted color photograph by Howard Weamer of a Yosemite scene; and

Participating Life Member: Ansel Adams Special Edition print, archivally mounted.

Membership dues are tax-deductible beyond the value of the benefits provided to the member.

Yosemite Association

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Dan Anderson