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MCZ newsletter

MUSEUM OF COMPARATIVE ZOOLOGY

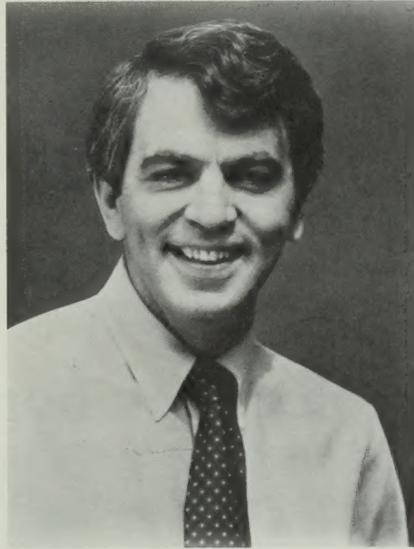
Friends of the MCZ 1982 Lecture Series

The Politics of Conservation

Three distinguished speakers will examine the issues currently facing conservationists from three perspectives: local, national, and international.



January 14: **Dr. Gerard A. Bertrand**, President, Massachusetts Audubon Society: *One Earth: Where does it start?* An examination of what can and must be done locally and if the world environment is to be saved.



February 18: **Senator Paul E. Tsongas**, Commonwealth of Massachusetts (Democrat): *The Environmental Movement in the Watt Era*. A member of the Senate Energy and Natural Resources Committee, Senator Tsongas will express his views on the current national conservation situation.



March 4: **Dr. Thomas E. Lovejoy**, Vice-President for Science, World Wildlife Fund: *International Conservation Initiatives*. The current program for world-wide conservation will be discussed with special emphasis on establishing parks and refuges in Central and South America.

The lectures will begin at 8:00 PM and will be open to the public.

There will be a reception for Friends of the MCZ to meet the speakers prior to the lectures, at 7:00 PM in the Romer Hall of Vertebrate Paleontology.

For series reservations, please fill out and return the enclosed registration form.

Chinese Paleontologist Brings Fossils



Dr. Ai-Lin Sun

The MCZ's traditional and current interest on mammalian origins is being both helped and stimulated by **Dr. Ai-Lin Sun's** current visit. Dr. Sun is Vice-Director of the Institute of Vertebrate Paleontology and Paleoanthropology at the Chinese Academy of Sciences in Beijing and currently a Visiting Scholar in the Vertebrate Paleontology Department.

The only complete skulls of the earliest humans are from the Yunnan Province of Southern China. Dr. Sun has brought several of these, as well as skulls of advanced mammal-like reptiles, to the MCZ for study and preparation. The skulls are a little over an inch in length and preserved in a matrix of hard red rock. **Mr. William Amaral** is tackling the exacting task of removing the matrix from these important specimens. Dr. Sun's visit coincides with **Dr. Farish A. Jenkins'** highly successful collection trip to deposits of the same age in the Kayenta formation of the western United States where faunas nearly identical in age have been discovered.

"The American and Chinese material complement one another and as a result of Dr. Sun's visit, we will not only have a clear picture of mammalian origins, but for the first time in many years we are receiving first-hand information on the enormous strides Chinese paleontologists have made during the last decade", said **Director A.W. Crompton**.

Visitors

MCZ Associate, **Dr. Edward Lyke**, Professor of Biological Sciences and Department Chairman for the past three years at California State University at Hayward, is spending a sabbatical year in the Marine Biology Department at the MCZ. Together with Drs. Robert M. Woollacott and Christopher Reed, he is studying various aspects of larval settlement and metamorphosis. He is interested in learning techniques such as scanning electron microscopy to further his research on estuarine biology at Hayward.

Dr. Philip Kitcher, Associate Professor of Philosophy at the University of Vermont, is spending his sabbatical year at the MCZ with the support of a fellowship for the American Council for Learned Societies. A specialist in the philosophy of science, Dr. Kitcher is taking advantage of the opportunity to exchange ideas with the MCZ's resident contemporary biological theorists. He is currently engaged in writing a book, to be published by M.I.T. Press entitled *Abusing Science*, a critique of the misconceptions about science perpetuated by the so-called "scientific creationists".

Dr. Terry Christenson, Associate Professor of Psychology and Biology at Tulane University, is visiting Professor Herbert W. Levi's spider research lab. Having conducted ecological field studies on a particular species of spider (*Nephila clavipes*), Dr. Christenson, an MCZ Associate in Invertebrates, is learning more about its physiology and anatomy in order to better understand its reproductive and aggressive strategies.

Dr. Ewald Weibel, Professor of Anatomy and Department Chairman at the University of Berne Medical School, Switzerland is Visiting Alexander Agassiz Professor this fall. Working with Professor C. Richard Taylor at the Concord Field Station, Dr. Weibel is examining the relationship between the structure and function of the respiratory system by following the flow of oxygen from the lung through the blood to the muscle cells, and specifically, the mitochondria. Dr. Weibel is also finishing a book, entitled *The Pathway to Oxygen*, to be published by Harvard University Press. Dr. Weibel, who will be in residence at Dunster House until March, was recently honored by being elected a Foreign Associate of the National Academy of Sciences.

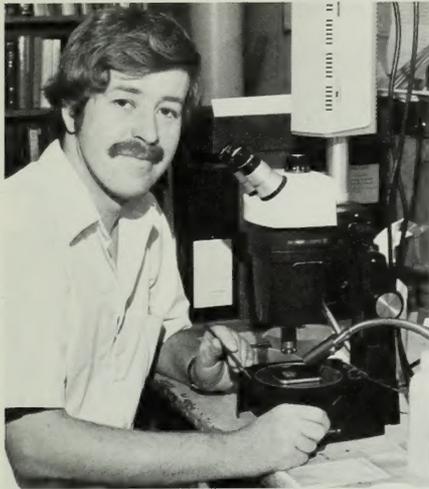
Famous Jawbone



The much-publicized find from this summer's vertebrate paleontology field expedition to Arizona—the earliest mammal jaw to be found in this hemisphere. Former graduate student **Dr. Kathleen K. Smith**, now at Duke University, found the jaw on the last day of an expedition led by **Professor Farish A. Jenkins, Jr.**

Appointments

Peter G. Williamson



Dr. Peter G. Williamson has been appointed Assistant Professor of Geology and Assistant Curator in Invertebrate Paleontology in the MCZ as of February 1, 1982. He received his Ph.D. from Bristol University and has been working at the MCZ since 1979 as a N.A.T.O. Overseas Research Fellow.

Dr. Williamson's research is contributing new arguments for the "punctuated equilibrium" theory of evolution proposed by Eldredge and Gould in 1972, currently at the center of evolutionary debate. This theory, related to ideas of rapid speciation developed by Mayr in the 1950's, attempts to explain the missing links in the fossil record (which should be there if the gradual microevolutionary Darwinian theory of evolution is to be upheld) by postulating that intermediate forms are not normally preserved; rather, long periods of equilibrium are punctuated by periods of rapid microevolutionary change. It has been difficult to find intermediate forms since these periods of rapid change take place in small, stressed, geographically-isolated localities.

With Richard Leakey's 1968 discovery of late Cenozoic deposits east of Lake Turkana in northern Kenya, a uniquely well-documented sequence of freshwater mollusc fauna were uncovered. Snails make ideal study specimens since their entire life history is

recorded in their shells; this is not true of vertebrates, whose bones only leave a record of their condition at time of death. Dr. Williamson's detailed study of this mollusc fauna has produced evidence supporting the "punctuated equilibrium" theory, and has provided the first

paleontological evidence of intermediate forms during the speciation process.

Readers are referred to *Nature*, Vol. 293 (October 8, 1981) and *Science*, Vol. 214; No. 4521 (November 6, 1981) for more complete presentations of this work.

Marion Deane Bowers

Dr. Marion Deane Bowers has been appointed Assistant Professor of Biology and Assistant Hessel Curator of Lepidoptera in the MCZ as of July 1. Dr. Bowers received her doctorate degree from the University of Massachusetts at Amherst and subsequently worked with Dr. Paul Ehrlich at Stanford University. While an undergraduate student at Smith College, Dr. Bowers was curator of the Lepidoptera collection there.

Dr. Bowers' research on checkerspot butterflies (*Euphydryas*) involves both study of geographic variation and speciation, as well as their ecological and evolutionary relationship with their hostplants. She is interested in both sides of this relationship: on the one hand, how does the plant defend itself, chemically, ecologically, and physiologically; on the other, how do the insects respond to these defenses.

In this vein her research is focused on two projects: 1) the role of a specific group of plant secondary compounds, the iridoid glycosides, in determining patterns of hostplant utilization by insects feeding on plants containing these compounds; and, in turn, how the insects respond to those compounds. 2) The evolution of unpalatability in a system where several insect species feeding on the same species of hostplants show differing degrees of unpalatability.

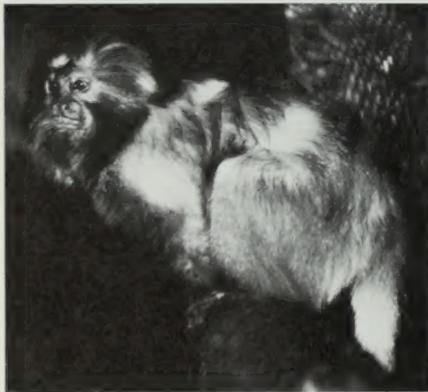
Unpalatability as a defense strategy by insects is a related research project which Dr. Bowers plans to carry out at the Concord Field Station. A preliminary season of surveying the local butterfly population will be followed by experiments on butterfly predation by birds. Dr. Bowers plans to use bluejays for this work since "they are quite bright and easy to work with."



Field Studies

Brazil: Last summer's field season in Brazil has resulted in the first film footage of the world's two most endangered primates—the golden lion tamarin, also known as the golden marmoset, and the woolly spider monkey. The research team of MCZ Associate **Russell A. Mittermeier**, Director of the Primate Program for World Wildlife Fund—U.S., **Mark Plotkin** of the Harvard Botanical Museum, and **Andrew Young**, cameraman and Harvard undergraduate, located these disappearing primates in small patches of forest, only one of which has been designated as a reserve.

The survival of the golden lion tamarin, a small squirrel-sized monkey with brilliant golden fur, is threatened largely because of habitat destruction and, to a lesser extent, trapping pressure to serve an international market (mainly in the 1960's). The woolly spider monkey is the largest of New World monkeys and the largest mammal endemic to Brazil. It was once widespread in the Atlantic forests of southeastern Brazil from the state of Sao Paulo to southern Bahia, but has disappeared with the destruction of its habitat and the additional effects of poaching, even in protected areas.



Golden lion tamarin from Brazil

The film, which also features other species including the endangered brown howler monkey, the southern Brazilian tufted capuchin monkey, and a variety of regional birds, mammals, and reptiles, will be approximately 30 minutes in

length. An evening to view the film and meet the research team will be

sponsored by the Friends of the MCZ in the spring.



Research team in Brazil: (l. to r.) Dr. Russell A. Mittermeier, Mark Plotkin, and film-maker, Andrew Young

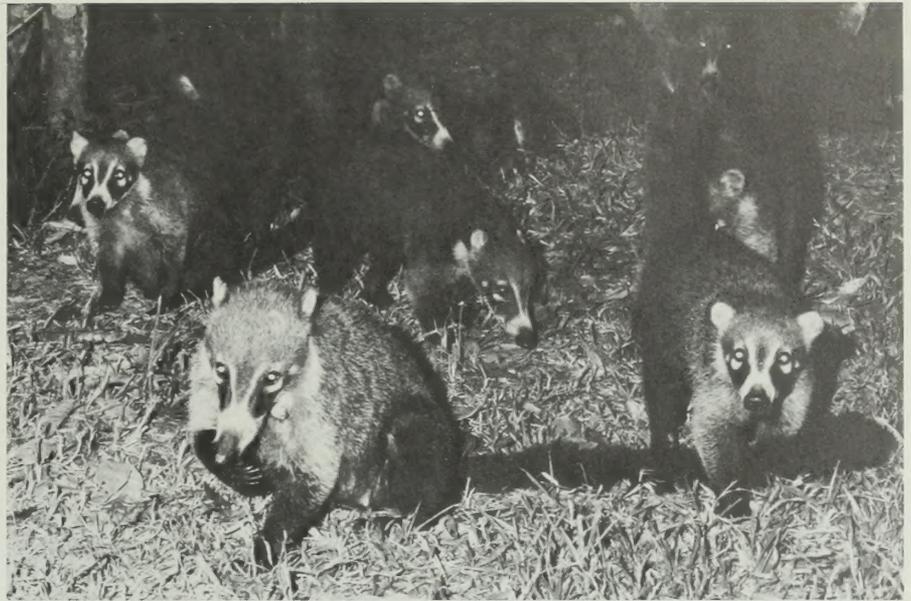
Photo by John Fleagle



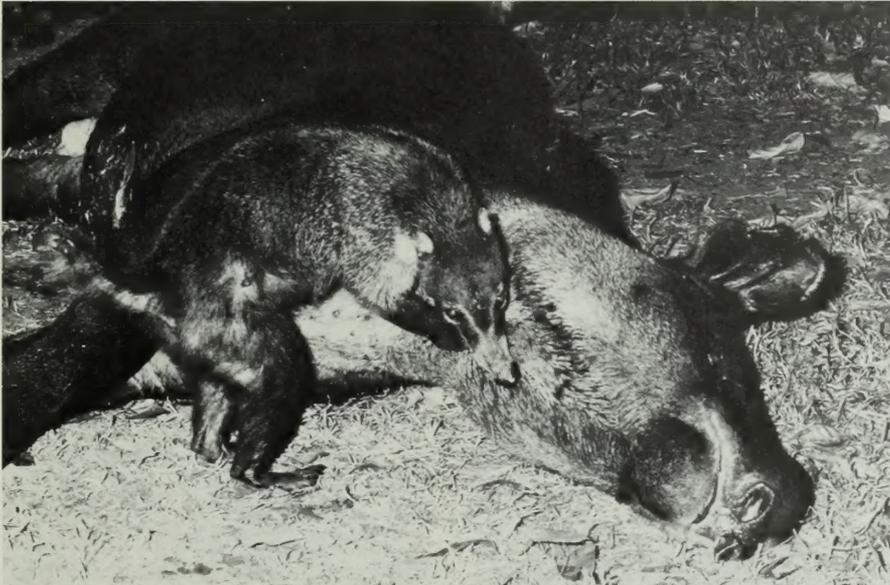
Woolly spider monkey, largest New World monkey

Photos by Russell A. Mittermeier

Panama: MCZ graduate student **Deedra McClearn's** recent work on Central American mammals has brought to light a hitherto-unknown example of symbiotic behavior between coatis and tapirs. Strongly favoring small invertebrates in their diet, coatis feed on blood-filled ticks on the bodies of tapirs, temporarily relieving the latter of their host function.



Coatis, *Nasua narica* (sometimes known as "coatimundis") are normally diurnal. However, around the kitchen of the Smithsonian Tropical Research Institute, their opportunistic feeding behavior keeps them up into the night waiting for handouts.



A coati feeding on blood-filled ticks from the neck of a tapir.

Photos by Deedra McClearn

*A two-week old tapir, *Tapirus bairdi*, walking in long grass, attracting ticks.*



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New Quarters for Biological Oceanography and Marine Biology



Professor James J. McCarthy relishes the spaciousness of his new office where the telephone is not covered by mail!

Professors **James J. McCarthy** and **Robert M. Woollacott** are now occupying expanded quarters with modern laboratory facilities on the fifth floor of the MCZ Labs.

"The difference is not just reflected in increased breathing space", says Dr. McCarthy, "but also in our ability to preserve and study marine organisms brought back from research cruises in our new temperature-and-light-controlled culture room. The instrument room is also environmentally-controlled, greatly increasing the reliability of our measurements."

Dr. McCarthy and his group are engaged in a long-term study of the biological significance of the "warm core rings" created by the Gulf Stream in the water region adjacent to the northeast United States and Canada.

This NSF-NASA-funded project includes 20 other scientists. Communication among these researchers had proved to be unwieldy until the recent introduction of a Telemail system (communication takes place through microcomputers rather than the telephone and conventional mail) significantly alleviated the problem.

The enlarged facilities, which were made possible with financial

support from Harvard's Faculty of Arts and Sciences, not only provide ample lab work space but also a secretarial office and conference room, shared with Dr. Woollacott, whose marine biology laboratories occupy the other side of the fifth floor.

The most dramatic change that his newly-improved quarters have made in Dr. Woollacott's research is that he is now able to work with living marine animals under controlled temperature and light conditions. Previously, he was dependent on traveling to marine laboratories and was limited in the range of experiments he could perform.

One-half of Dr. Woollacott's current research program is devoted to sensory biology studies. With curatorial assistant **Mary Sue Brancato**, Dr. Woollacott is investigating how the larvae of marine invertebrates respond to such factors as light and gravity and, on a biochemical level, how they select the substrate on which they will metamorphose.

Embryology and evolution of moss animals (bryozoans) constitute the other half of current research activities. Bryozoan colonies are major components in the marine fouling communities, encrusting a diversity of objects along the ocean coast. Post-doctoral Fellow **Christopher Reed** is working with Dr. Woollacott on the differences that occur in the mechanisms, as well as tissue rearrangements, in the transition from free-swimming larvae to the sessile adult forms that comprise bryozoan colonies.

Herpetology Grant Funded

A new five-year grant of approximately \$240,000 from the National Science Foundation will make possible much-needed improvements in the research capabilities of the Herpetology Department and provide salaries for two new staff members: Curatorial Associate

James Knight, previously at the University of Kansas, and Curatorial Assistant **Judith Blake**. The MCZ is providing partial matching funds.

The first five-year NSF grant to the Department, awarded in 1975, provided for enlarging and generally improving the Department and upgrading of vast collections of reptiles and amphibians, the largest herpetological collections in any museum in the world. The present grant will allow for continued improvement and the creation of modern laboratory facilities. "The new facility will allow for the appropriate maintenance and development of an outstanding collection of skeletons and chromosomal preparations", said **Dr. Pere Alberch**, Assistant Curator.

Fish Department Dedicates Library

In recognition of his numerous scientific and administrative accomplishments, kindness, and great generosity, the Fish Department Library was officially named the William C. Schroeder Memorial Library on August 26, 1981. Numerous family members, including his widow, **Mrs. Ada Schroeder**, attended the informal ceremony hosted by **Drs. Karel F. Liem** and **William L. Fink** of the Fish Department.

"The library is right in the middle of the collections, where the action is, exactly reflecting the work habits of Schroeder", said Dr. Liem. "With the generous donation by the family of Schroeder's collection of approximately 10,000 reprints and 100 books, the Fish Department now has a fully/functional research library."

At the dedication ceremony, Professor Karel F. Liem poses with Mrs. Ada Schroeder and her daughter Mrs. Gloria Gallagher, in front of a photo of William Schroeder and a biographical plaque. →

Katharine (Kaki) Aldrich 1934-1981

The death of Kaki Aldrich on September 30 was a sad loss to the many at the MCZ who counted this inspiring woman as a close friend. Her unusually open attitude towards her fight with cancer had the effect of inviting all who knew her to participate in her struggle.

When Mrs. Aldrich came to the MCZ's Public Programs Department in early 1976 she played a key role in the establishment of the Museum Guide Program. Her warm, personal approach to education permeated her training programs for new volunteer guides, giving them the self-confidence to abandon the traditional lecture method and encourage their students to explore, question, and use themselves as a resource for learning in the museum's exhibit halls. In order to capture Mrs. Aldrich's teaching approach permanently, the MCZ, with the assistance of a generous donor, contracted Rob Morris to produce a videotape program entitled *Kaki Aldrich: A Teacher and Her Methods*. Now used in many museums and schools as a basic training tool, this program won an award from the New England Museums Association in 1980.

While she always contributed ideas to new exhibit projects, during the last year she became actively involved, with David Ebert of the Exhibits Department, in designing

the exhibits for the Romer Hall, now being renovated.

Mrs. Aldrich divided her time between the MCZ and Boston's Children Museum, where she taught courses and developed natural history exhibits. She was also a science teaching consultant at six area institutions, including Brandeis University in Waltham, and taught courses for teachers and other adults at Wheelock College, Boston University College of Liberal Arts and more than 20 other area schools

and teacher centers.

Born in Shreveport, Louisiana, Mrs. Aldrich grew up in St. Louis where she attended the John Burroughs School. She received a B.A. degree in conservation from Vassar College in 1956. She leaves her husband, David; three children, Nathan, Oona, and Matthew Aldrich; her parents, Katharine (Quinn) and Thomas H. Wagner of St. Louis; and two brothers, Rodney Wagner of Brooklyn, New York and Thomas Wagner of Portland, Oregon.

Longer Service Recognized



Employees who have worked at the MCZ fifteen years or longer, honored at a Recognition Ceremony on June 18, (l. to r.) Catherine McGeary (Herpetology Secretary), Charles Atlas (Building Superintendent), and Marjorie Sturm (Administrative Officer). Not pictured: Victoria Kohler (Curatorial Associate in Invertebrate Paleontology).



Current MCZ employees (l. to r.) Maria Woodman (Technical Services Librarian), Kathleen Horton (Secretary to E.O. Wilson), and Ed Seling (Scanning Electron Microscope Technician), who have all worked at Harvard more than fifteen years.



Public Programs

Children's Courses

In response to the increased demand from local children and their parents for in-depth courses in various aspects of natural history, the Education Department is offering an array of programs this fall and winter. Using the vast resources of the MCZ, children learn about the habits and habitats of various animals, both local and exotic. Classes are currently being held on most afternoons and Saturday mornings. Call the Education Department at 495-1771 or 495-2341 for more information.



Scientific illustration and nature drawing courses for adults have been well-subscribed at the MCZ since 1975. Now *Nature Drawing for Children* is being offered for the first time, on Mondays starting November 23. **Karen Jepson**, who combines skills as an illustrator (her work has appeared in various publications as well as on this page) and a teacher of young children (as instructor at Colorado's Bear Creek Nature Center) will teach this course.



Travel Program

The 1982 MCZ natural history travel program is the most adventurous to date. There is still room on all these expeditions, which promise to be unusual learning experiences in fascinating locations. Contact the Friends of the MCZ office for detailed itineraries on the following trips:

Australia/Tasmania, July 10-August 2, 1982, led by **Dr. John A.W. Kirsch**, Associate Professor of Biology and Associate Curator of Mammals in the MCZ.

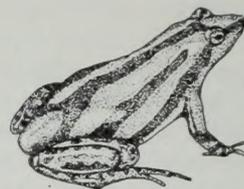
Marsupial specialist John Kirsch has spent a total of six years working in Australia. He will be joined by **Dr. John F. Lawrence**, formerly of the MCZ and now Curator of Coleoptera (beetles) at CSIRO in Canberra, in leading the group on a round-trip which includes the Great Barrier Reef, Alice Springs and Ayres Rock in the central desert region, nature reserves near Adelaide, Melbourne and Canberra, six days in Tasmania and two days in Sidney. The group will visit the field study sites of several researchers and will see all the familiar Australian mammals and birds and many not-so-familiar ones.

Group size: 30, Costs: \$2,795 (excluding airfare), \$300 tax-deductible contribution.

Guana, British Virgin Islands, March 30-April 9, 1982, led by **Dr. James D. Lazell**, Associate of the MCZ.

An experienced field naturalist who has recently completed a world-wide expedition studying various endangered species, Dr. Lazell will be conducting a detailed ecological survey and invites partic-

ipants to join him and see the work in progress on this beautiful, virtually-pristine Caribbean island.



There is a comfortable hotel and all the tropical pleasures will be available. Early morning bird walks, beach and reef swimming and snorkeling, and evening slide talks and discussion sessions will be daily features.

Group size: 30, Costs: \$1,150 (excluding airfare), \$100 tax-deductible contribution.

Southwestern Arizona, June 1-8, 1982, led by **Norman Woodley**, MCZ graduate student and bird expert.

This one-week sojourn at the Southwestern Research Station in the Chiricahua Mountains near Portal, Arizona is recommended for serious naturalists. The birds, wildflowers, and insects will be plentiful in June. Our guide has spent several field seasons at this American Museum of Natural History Research Station, and is thoroughly familiar with the local flora and fauna. Upon arrival in Tucson a visit to the Desert Museum is planned prior to departure for the mountains.

Group size: 12, Costs: \$500, (excluding airfare), \$50 tax-deductible contribution.

Baja, California Whale-watching, January 27-February 4, 1982, led by naturalists **Bruce Wellman**, **Leslie Cowperthwaite** and **Reed Pierce**.

This perennially popular trip is providing closer encounters with the California gray whales each year. Island stops along the way to San Ignacios Lagoon include opportunities to observe elephant seals, California sea lions, and numerous shore birds. This will be our seventh season of Baja whale-watching.

Group size: 32, Costs: \$750 (excluding airfare), \$100 tax-deductible contribution.



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