

IN THIS ISSUE

FEATURES

"And then there were none": Saving the Rhino Marvin Jones	6
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Charles Robbins Schroeder: A Life Celebrated Marjorie Betts Shaw	16
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Back From the Mesozoic: Dinosaurs Gather at the Wild Animal Park Thomas L. Scharf	20
---	----

WHONOOZ

Taking Steps for Rhinos: The Odyssey of Michael Werikhe	12
--	----

Images: Animals in the Garden	14
-------------------------------	----

A Remembrance: Pamela C. Orsi 1963-1991	25
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NOOZNOTES

Birthday Presents	23
Demystifying Dinosaurs	23
Wildlife Treks	23
Therapy for a Dying Planet	24
Summer School	24
Shop Talk	25

Direct Line: Water Watch, Part II	6
Looking Back: Growing a Green Zoo: An Interview with Timothy Aller	4
On the Botanical Side: Prescription Browse for Rhinos	26

This month ZOONOOZ looks at the rhinoceros and its history at both the Zoo and the Wild Animal Park. A special Society tribute also goes to the Zoo's former director and founder of the Park, Dr. Charles Schroeder.



COVERS

Front: The emblem species of the Wild Animal Park is the southern white rhinoceros *Ceratotherium simum simum*. The Zoological Society has had great breeding success with this species—75 offspring have been born since 1971. San Diego Zoo photo by Ron Garrison.

Back: The natural habitat for the Indian rhinoceros *Rhinoceros unicornis* includes swampy grasslands. Good swimmers and divers, they enjoy bathing and wallowing daily at the Wild Animal Park. San Diego Zoo photo by Ron Garrison.



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• Promote activities at the San Diego Zoo and San Diego Wild Animal Park, and stimulate attendance.
• Generate interest in and membership in the Society.
• Contribute to the reader's knowledge of exhibits, research, education, animals, plants, and other matters pertinent to the Society's purposes.
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Hours through May 31

San Diego Zoo	Wild Animal Park
Gates open: 9 A.M.	Gates open: 9 A.M.
Gates close: 4 P.M.	Gates close: 4 P.M.
Off grounds: 6 P.M.	Off grounds: 5 P.M.

On the BOTANICAL side...

San Diego Zoo: R. Garrison



Prescription Browse for Rhinos

Daniel Simpson HORTICULTURE

The five species of rhinos that exist today are somewhat specialized in their feeding methods. The white, or square-lipped, rhino and the Indian rhino are grazers, meaning that they feed on grasses and other similar types of vegetation. The black, or hooked-lipped, rhino and the Javan and Sumatran rhinos are considered browsers because they feed on small trees and shrubs.

Regardless of their specific feeding behavior, rhinos require large amounts of fiber for their slow digestive systems. Bacterial activity in the cecum, rather than in the stomach, breaks down the cellulose contained in the volume of vegetation a rhino needs to consume daily. In their natural habitat, these animals have access to a wide variety of plant material. However, habitat destruction reduces their food supply and increases competition for living space and available forage.

Captive management and successful reproduction are important steps in the

An East African black rhino Diceros bicornis michaeli and her youngster browse on Ficus macrophylla. The Society's rhino browse program provides several pounds of such vegetarian treats as ficus, acacia, or hibiscus cuttings for each rhino every day, fulfilling their behavioral need to forage for food.

survival of these species. A good example is our southern white rhino population at the Wild Animal Park, where successful care and reproduction have produced 75 offspring since 1971. We hope to parallel that kind of success at the Zoo as well. On Elephant Mesa we have two species of rhino, the Sumatran and the black. Our browse program is designed to meet their needs. Barakas, a fifteen-year-old female Sumatran rhino, is an enthusiastic browser. In order to keep her happy and healthy and to reduce her impact on the plants in her exhibit, she receives daily offerings of several different plant species, including acacia, ficus, and hibiscus. Presently, she consumes about twenty or more pounds per day. In the near future, we plan to receive a male companion for her, and we hope this will lead to a triple demand for browse.

Nearby, we have two pairs of black rhinos, Dillon and Scooter and Gundwane and Chirundu, that also require branches of foliage on a daily basis. Our captive rhinos receive a carefully planned diet of herbivore pellets, carrots, yams, apples, alfalfa, and vitamin E supplements that meets their nutritional needs, but the browse material supplements that diet and helps to meet their behavioral needs.

Rhino researchers in the field have compiled lists of the plant species rhinos seem to prefer. Although we have an ex-

tensive botanical collection on our Zoo grounds, most of the plants listed by the field biologists are not available for us to use as browse. In order to meet an expanding demand for browse by our rhinos from both Africa and Sumatra, we rely on the availability of generic plant substitutes, which we have growing on the grounds and which the animals will readily accept (see table). The browse-worker, a member of the horticulture department, delivers armloads of four- to six-foot branches of these plants to water barrels near the rhino exhibits several times a week.

Despite the variety of plants provided, the favorites seem to be *Acacia longifolia* and *Acacia saligna*, which are both from Australia. This preference may be due to the higher amount of cellulose present in the phyllodes, or leaflike petioles, that function as leaves on Australian acacias. In their desire for cellulose fiber, our rhinos will consume branches up to two inches in diameter—which makes those of us who have seen these browsing beasts in action wonder if they themselves aren't responsible for the deforestation of their natural habitats! The browse program as we manage it at the Zoo is an excellent example of how modern zoos meet the needs of the animals in their care, allowing them to continue to breed highly endangered species in captivity.

Plant Species Acceptable to Browsing Rhinos:

Acacia longifolia
Acacia saligna
Ensete ventricosum
Ficus benjamina
Ficus elastica
Ficus macrophylla
Ficus nekbulu
Ficus pumila
Ficus retusa
Ficus rubiginosa
Ficus thonningii
Harpephyllum caffrum
Hedychium flavum
Hibiscus rosa-sinensis
Morus alba
Syzygium paniculatum
Zingiber zerumbet

Opposite: The Zoo's female Sumatran rhino reaches up to sample one of the rhinos' favorite browse items, *Acacia longifolia*.

