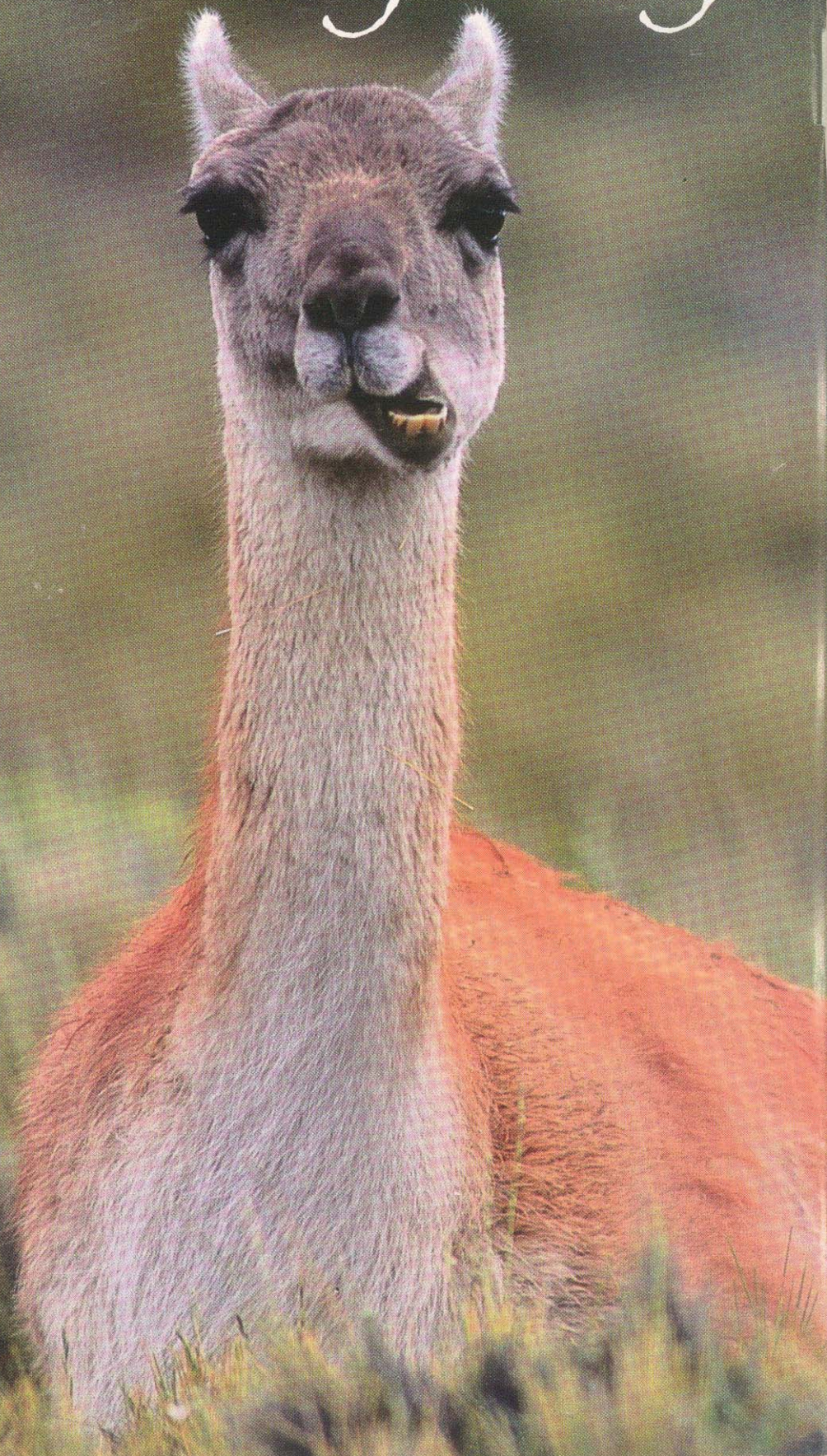


The Many Ways



Less than a week old, a guanaco youngster rests while its mother chews her cud. Among the most social of South American species, guanacos constantly signal. Ear posture, in this case in the normal, upright position, is one form of communication.

Guanacos Talk

*Communication
for these South American camels
includes ear signaling, humming, crouching,
spitting, chest ramming, tail pointing
and even "orgling"*

By Eric Hoffman
Photographs by Wolfgang Kachler
Field Research by William L. Franklin



Guanacos are social creatures that send messages to protect their family group and safeguard territory

FOR RESEARCHER William Franklin, a day's work near the sheer, granite towers of Chile's Torres del Paine National Park means breaking the communication codes of one of the most social species in all of South America.

Franklin studies guanacos, wild relatives of the camel. Sometimes his research animals appear, well, a little crazy. Consider these behaviors:

Two guanacos peacefully grazing side by side abruptly turn toward each other and stand toe-to-toe. One lifts its head, thrusts its ears straight back and tilts its chin upward. The other suddenly curls its tail onto its back and slinks away.

A young guanaco begins a series of springboardlike leaps in which all four limbs leave the ground at once. The entire herd stops to watch as the youngster weaves its way through them over and over again.

The patriarch of the group sprints to a rocky outcrop. He holds his tail in a near-vertical position, tilts his head skyward and rotates his ears flat against the back of his neck. An incoming guanaco takes one look and promptly exits.

Franklin, a wildlife ecologist at Iowa State University, has spent almost two decades trying to make sense out of actions like that. What he's discovered is that to communicate with each other, guanacos resort to a repertoire of peculiar behaviors and vocalizations that include everything from mild humming to spitting, submissive crouching, body posturing, locomotion displays, ear and

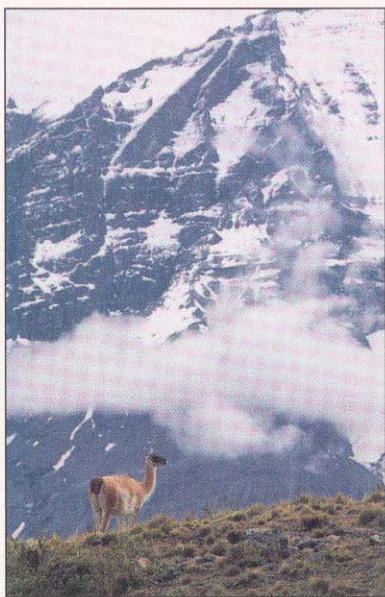
tail signaling, chest ramming, staccato-like neighing, territorial dung-pile marking and a melodious mating noise called orgling. "These animals," enthuses Franklin, "are fascinating social creatures that have mastered their own forms of 'language' in ways that give human voyeurs like me a window into the structure of their lives."

The guanaco language Franklin seeks to understand has been refining itself for 35 million years, which is when camel-like ancestors of today's guanacos began evolving in North America. The camel family ultimately vanished on that continent 3 million years ago, but not before a now-extinct forebear crossed the Panamanian land bridge and spread through South America. Today, there are six living members of the camel family. Four of them—the guanaco, vicuña, llama and alpaca—live in South America.

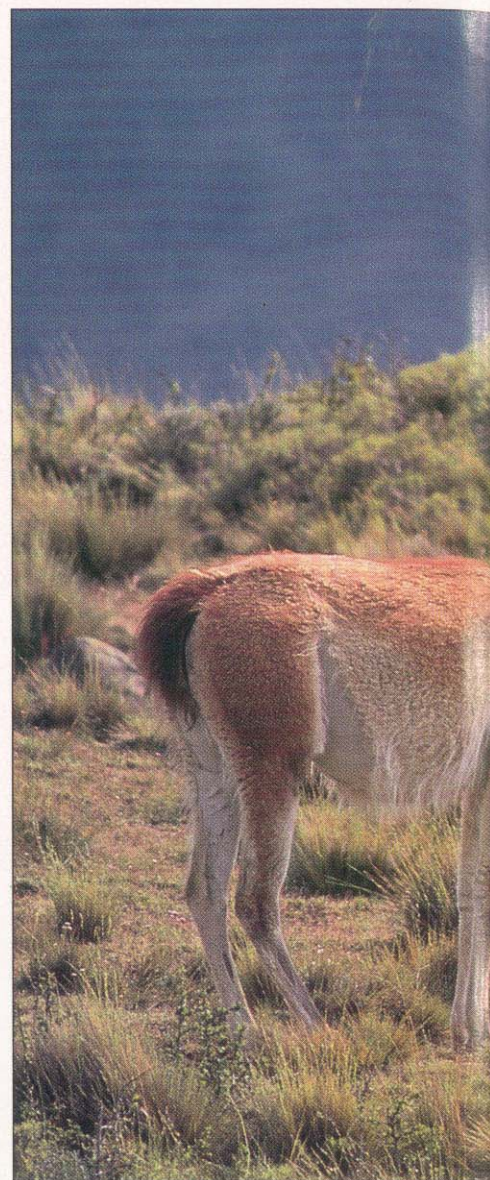
Guanacos are uniformly marked with brown or cinnamon coats. They have symmetrical white undersides and dark faces. Only slightly smaller than llamas,

they weigh between 100 and 125 kilograms (225-275 lbs.) and stand about 150 centimeters (5 ft.) high.

All four South American camels share behavioral traits and a common delicate appearance, characterized by a wool-covered body complete with a powder-puff tail, long supple neck, thin legs and an attractive face with oversized, doelike eyes, highlighted by the long eyelashes of a movie starlet. To some people, adult guanacos appear arrogant because of the disdain they seem to project while look-



A alert to other guanacos nearby, a female, dwarfed by mountains in Chile's Torres del Paine National Park (above), pauses from grazing. The young are reared in family groups (right) made up of a territorial male, plus females and young.



ing down their noses. To other people, the animals are the epitome of elegance.

Before Europeans began shooting them to make way for domestic livestock and to harvest their hides, guanacos were as many as 30 million strong. Now between 500,000 and a million remain. Ninety percent live in southern Argentina and southern Chile where they are found in deserts, beech forests and their preferred grasslands at elevations from sea level to 4,200 meters (14,000 ft.).

Franklin became captivated with the species in 1976 after first studying their smaller wild cousin, the vicuña of the high Andes. Since then, he has observed guanacos, often from blinds, for thousands of hours. His goal is to try to understand how they interact with their environment and how the environment has



shaped their behavior—all information that would help conserve the species. How these animals communicate with each other quickly became a central part of his research.

Guanaco herds, Franklin discovered, are usually well-defined social units. There are all-female and all-male herds, but guanaco offspring, called chulengos, are reared in a “family group” made up of a territorial male, usually six to ten females and the females’ young.

Unlike the vicuña, which sticks rigidly to its territory, guanacos have less well-defined territorial boundaries. During heavy snow, drought or other inhospitable circumstances, the animals may even migrate seasonally.

The family provides the social context that develops communication skills. The

territorial male acts as the gatekeeper. He signals, and chases off, overanxious males that would disrupt his females. Constantly on patrol, he also provides and protects the foraging area in his territory and is often the first to spot predators such as mountain lions and people. Once a year he expels yearlings, allowing females to devote all their resources to helping a newborn chulengo survive its first winter.

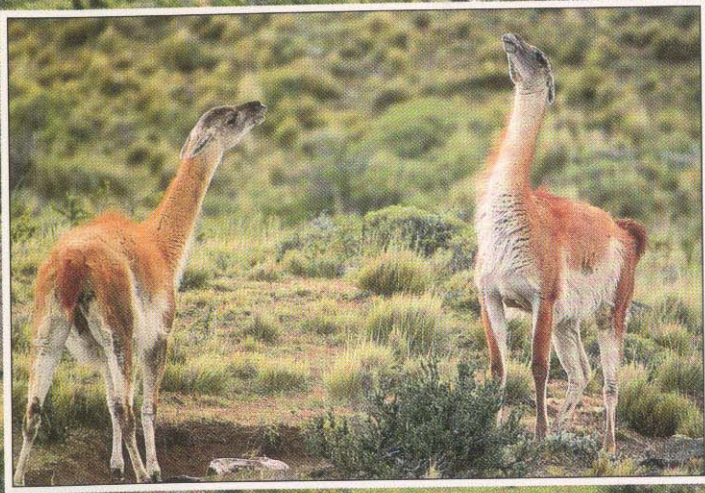
Communication becomes a tool to maintain and protect the family group and safeguard territory. “In our studies, we operate under the assumption that all communication has evolved to maximize survivability of the individual and to enhance reproduction,” Franklin says.

Understanding the many ways the animals talk helps to provide some basic

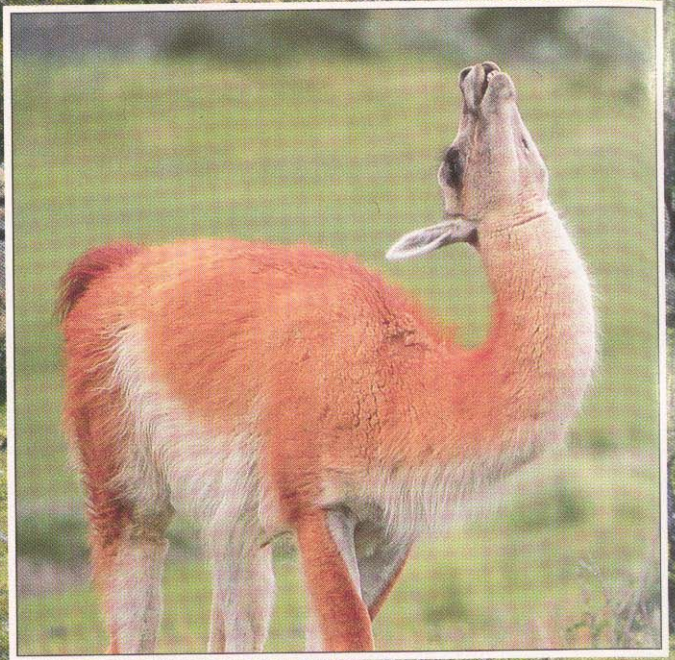
insight into their lives. Guanacos often communicate in a concert of various movements, body displays, vocalizations and even scents:

Body language. Whole body posture is especially important to mature males that spend much of their time advertising the boundaries of their territory. When a strange male approaches, the territorial male stands rigidly, his tail held high, neck bent in a slight “s” shape, ears pinned back and nose tilted skyward, in what has been termed a broadside display because the guanaco doing it often stands broadside to the animal he’s trying to intimidate. From as far as a mile away, the territorial male can give the warning that violence awaits any intruding guanaco.

If the intruder responds with a broad-

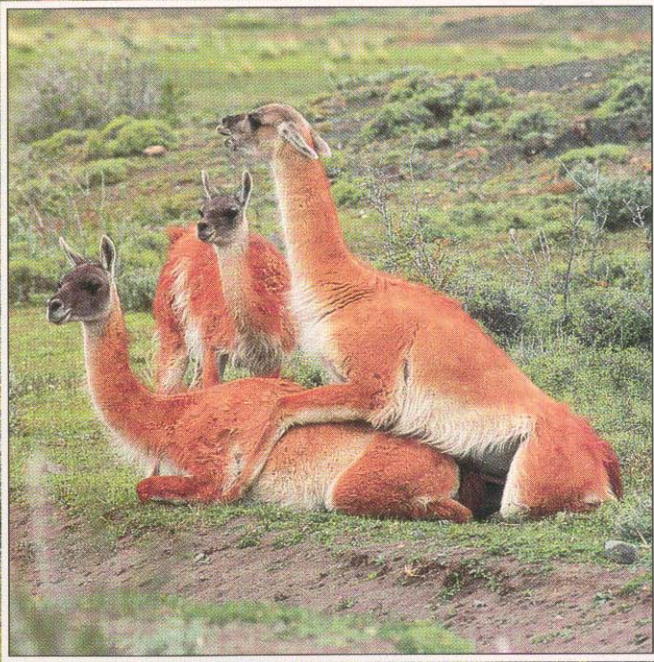


Interactions are constant in all-male herds (below), but females (above) also engage each other. In this case, a new mother attempts to fend off a curious member of her group.



A territorial male tilts his head back after sniffing a female's urine or dung. This scent display, called flehmen, is to gauge reproductive status.





During mating, males make a grunting sound called orgling, one of many guanaco vocalizations. The animal in the back is the female's yearling.

Young males play fight in a ritual that will prepare them to send a more biting message later when they spar for real as competing adults.



Young guanacos engage in graceful antelopelike leaps in which all four legs leave the ground at once

side display of his own and dares enter forbidden turf, the territorial male will attack violently. The most common response is a chase, but a tenacious challenger can expect to be spit upon, chest-rammed, bitten repeatedly by razor-sharp canine teeth and subjected to exhausting neck wrestling which may result in its being pinned to the ground.

When the incoming animal is a yearling, it will usually respond with what Franklin calls a "submissive crouch." This consists of lowering the head, curving the neck toward the ground, flipping the tail onto the back and crouching slightly.

The submissive crouch is also used within the family group when yearlings pass by the territorial male, who may soon expel them. Territorial males use it as well: The male signals nonaggression to an incoming female by bending into a submissive crouch in an attempt to entice her to join his feeding group.

Visual displays like these are essential to the guanaco, especially since there is no coloration and size differentiation between the sexes. Guanacos live in wide-open areas where their posture and other visual clues tell faraway neighbors what to expect.

Ear and tail signals. Changes in ear positions by only a few degrees can telegraph alertness, contentment or displeasure. A relaxed animal often holds its ears straight up or slightly back. An aroused animal, showing an "alert stance," rotates its ears forward toward whatever has piqued its curiosity. A

threatening animal uses a continuum of ear positions to keep overanxious males at bay, warn a chulengo to take its playfulness elsewhere or put a nearby adult on notice that it is intruding into another animal's foraging space.

Often if the ear messages and a sequence of other warnings fail, the trespasser may get spit upon until it leaves. Spitting can be mild or severe. Disputes

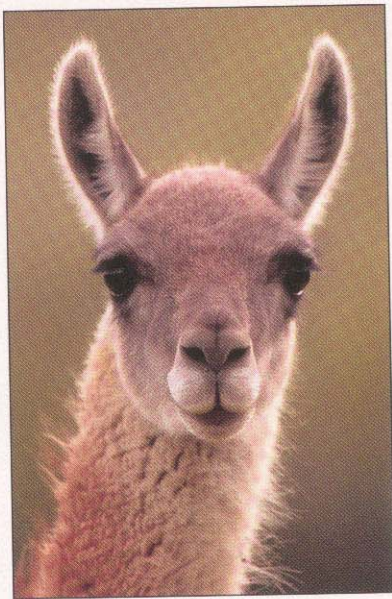
are farcical when animals of equal stature square off. Using regurgitated food from its stomach for ammo, one animal fires directly into the face of its adversary, who responds in kind. In a matter of seconds, one animal usually yields.

Ear and tail position in concert with body posture is a chief form of visual communication which helps maintain order in the family group. Such body language is more subtle, with more nuances, than dramatic territorial displays, but also more common.

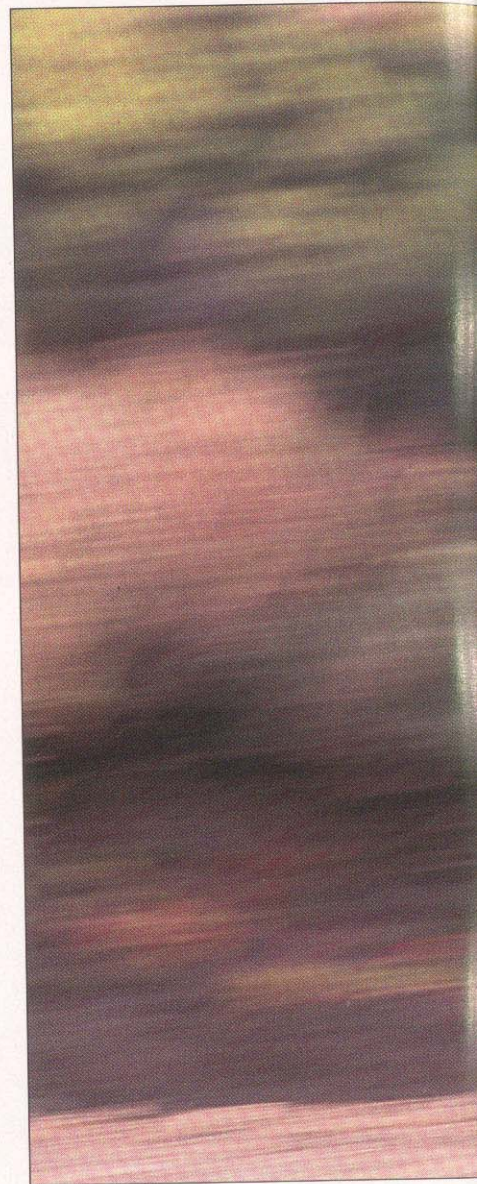
Vocalizations. Guanacos are almost always talking. The most common vocalization is humming, which occurs frequently among mem-

bers of a family group.

Franklin speculates that guanacos tailor inflections in humming to different situations. A low plaintive "contact hum" enables two individuals to stay in touch. Mothers and babies contact hum. An "interrogative hum," with a high-pitched ending, is the chulengo's way to demand nursing from its mother or simply to greet her after being separated. An "alarm call," described by Darwin as "peculiar shrill neighing," warns nearby guanacos of an approaching predator.



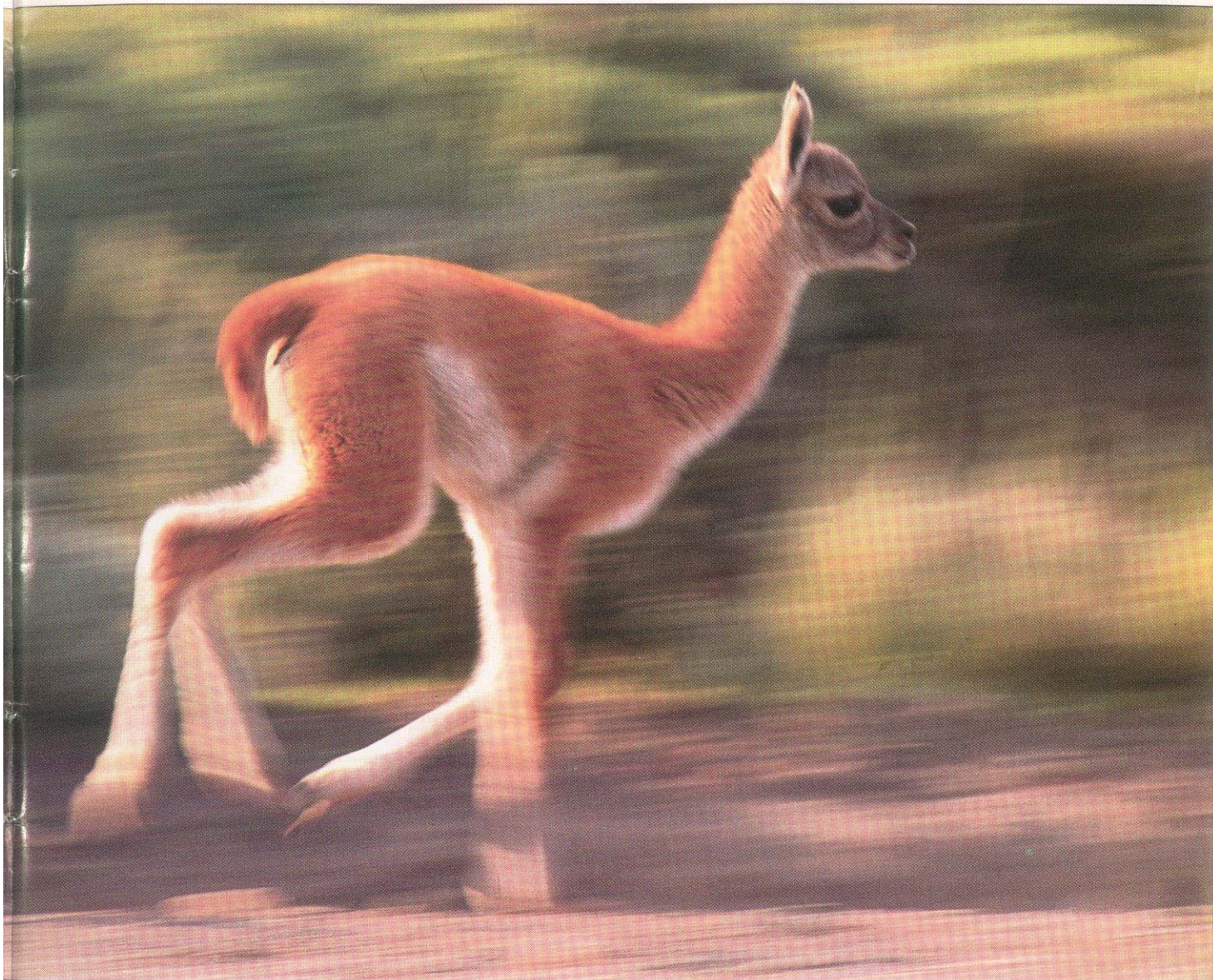
Ears erect, a two-year-old (above) signals alertness. Just a half hour after it is born, a young guanaco (right), called a chulengo, runs at high speed after its mother. When it gets older, it will communicate with leaping locomotion displays.



This high-pitched staccato sound can travel over long distances.

Still another call is "orgling," the noise made by the male in pursuit and during mating. It was described by German naturalist Hilde Pilters as "a rhythmic expiratory grunting." During the entire act of copulation, which can take up to an hour to complete, the male puffs his cheeks out and orgles melodically to the female that he's mounted. The sound occasionally attracts other receptive females who sit near the copulating couple awaiting their turns.

Scent communication. Males mark their territorial boundaries with dung piles that are recognizable to other guanacos. The dung piles serve as signposts advertising to other guanacos that a particular territory is already occupied.



Another form of scent communication is called flehmen. This refers to the peculiar way males inhale and sniff dung or urine of females to determine their reproductive status. The male sniffs a pile, tilts his head to a vertical position and inhales, loudly. Inhaling in this manner helps him assess the female's reproductive condition.

Locomotion displays. Guanacos have a number of gaits, paces and "stotting" motions used to signal play, fear, breeding readiness and aggression. Most locomotion displays are accompanied by tail and ear signaling.

When a territorial male rushes to drive intruders from his turf, he will often approach, holding his tail up or near vertical, with his neck held out straight from his body and his head close to the

ground. This peculiar running style usually elicits a response from distant animals, thus giving an outsider the option of running off, and saving wear and tear on both the aggressor and vanquished.

Stotting is an expression of play, mostly practiced by chulengos at dusk. This form of movement involves graceful antelope-like leaps in which all four legs leave the ground simultaneously. The stotting animal holds its head high as it bounds around its family group. Franklin thinks young adult female guanacos that have been expelled from their family group will use stotting as a "flirtation" display, in order to be noticed and accepted into a territorial male's family group.

For Franklin, deciphering the mystery of guanaco language is an ongoing task.

As the scientist watches near the shadow of a breathtaking glacier in the Patagonia mountains, a territorial male runs to a dung pile, sniffs it, points his head to the sky, snorts loudly, makes an odd gurgling sound and chases a nearby female who coyly bounds along in front of him before submitting to breeding. ■

Eric Hoffman owns an alpaca and llama ranch in California. His latest book, Adventures in Belize (Sierra Club/Random House), is slated for publication this fall. German photographer Wolfgang Kaehler spent five weeks in Chile shooting the pictures for this article. Bill Franklin is director of Iowa State University's Patagonia Research Expeditions, which accepts ecotourist volunteers to work with him in the field studying guanacos.