



STARTING TONES

MOZART'S MUSE

NATURE'S ORCHESTRA

ANCIENT MUSIC

**Bunkum!**

The notion that western composers were inspired by nature verges on blasphemy, at least according to musician and natural sound recordist Bernie Krause. Krause, who has recorded sounds in the Arctic, the Antarctic and many places in between, and who created sound for films like *Apocalypse Now*, says composers and other city people spend a lot of energy trying to tune out urban noises.

That effort, he thinks, sabotages the innate ability to hear nature.

Because so few Western composers have contact with nature, he says Western music has "nothing" in common with natural sounds: "We have a tendency in Western culture to consider music those sounds we control. That's the limit of our experience."

In reality, Krause, who has spent 30 years recording in nature and now runs the natural-

**Listen for yourself:**



hearing.

Ominous! Alligators and crocodiles produce very low frequency roars and rumbles, some of which lie below the range of human



Madagascar.

A troop of ring-tailed lemurs call, yodel and shriek as they establish territory and encounter another group of lemurs in southern



females.

Emperor penguins can dive to depths of 1,500 feet. Differences in calls help distinguish males from



Walrus haul out in groups of thousands during the

sound business summer months at Round Island, Alaska.  
Wild Sanctuary, Their underwater sounds include teeth  
 admits that clacking and a bell or gonging sound.

individual birds **Sounds courtesy Wild Sanctuary**

may have

inspired Western

composers, as Baptista contended. But Krause maintains that the only music really inspired by nature is made by those rare cultures that remain in intimate contact with nature.

### Sound advice

For example, he says the Kaluli in New Guinea play the flute to the accompaniment of an "orchestra" of frogs. And the Bayaka, pygmies in the Central African Republic, have a complex, polyphonic music inspired directly by their rain forests (see "Bayaka..." in the [bibliography](#)).

The Bayaka's music, set against the natural sounds of their forest, makes the point quite eloquently; these sound files are definitely worth downloading.

### Bayaka: Pygmies in Central African Republic.



played on a zither-like instrument while walking.



at a spear-hunting camp, played by men, women and children on drums, pots, logs and sticks. The cry comes from the bobe, a spirit incarnated by a tribal member.



Courtesy [Ellipsis Arts, Inc.](#)

Some native Americans remember the natural

origins of their music, Krause says. About 30 years ago, a Nez Perce elder in Oregon demonstrated how his people learned to make music from reeds that resonated with the wind after being broken by wind or ice.

### **Nature's orchestra**

While Krause maintains that Westernized music is seldom based on nature, he finds plenty of music in nature itself. Indeed, he calls the entire spectrum of natural sounds in an unspoiled area a "biophony," on the analogy of a symphony. "All creatures in a given area of pristine or undisturbed habitat are vocalizing in relation to one another," he argues. "Like instruments in an orchestra, each has a frequency, a rhythm, and a voice. They stay out of each other's way." Scientists say animals use their voices for specific reasons, warning of predators, marking territory and attracting mates. But the scientific focus on single animals rather than the entire spectrum of sound in nature is misleading, Krause maintains.

Looking at the large picture is instructive, he adds. For example, in Venezuela, he acoustically mapped the territory of warblers and other songbirds that had migrated south from the U.S. East Coast. The birds, he says, "Flew through the different grids of sound until they found a place where their voice would not be masked."

In other words, the birds were not merely looking for a place lacking fellow species-mates, as the standard theory of territoriality would hold. Rather, they were looking for a place where their call would not be masked by any sounds, whether from fellow birds, toads or insects.

### **Nice niche**

The pattern is clear enough to establish what Krause calls a "niche hypothesis ... In every unaltered habitat we have recorded, many birds, mammals and amphibians find and learn to vocalize in acoustical niches unimpeded by the voices of less mobile creatures such as near-ranging insects." That

pattern is evident in this **diagram**.

Although it's plausible that animals would find a niche where their voices are not drowned out, Krause, who has a Ph.D. in creative arts with an internship in bioacoustics from Union Institute in Cincinnati, admits that his **niche hypothesis** is hard to prove to scientists. "It's looked at with a lot of skepticism because it doesn't fit the paradigms of classroom natural science." A second problem, he admits, is that it's hard to quantify, due to the large number of variables.

Although mainstream scientists would say that these noises are simply marking territory, Krause maintains the animals are actually engaged in a symbiotic vocal relationship with others in the forest.

### Getting defensive

Symbiosis appears, for example, in the collaborative use of sound for protection.

During mating season, for

example, the spadefoot toad at Mono Lake in eastern California, vocalizes in a chorus that swirls around the wetland. The sound apparently confuses predators trying to locate toads for the dinner plate: While recording at the lake, Krause once noticed the chorus being disrupted by the racket of a jet plane, upon which two coyotes and one great horned owl moved in for a savory snack of toothsome toad.



Spadefoot toad courtesy [USGS](#)  
Photo by Hoberg and Gause

That small example demonstrates the larger fact that development and "progress" are making natural soundscapes ever scarcer. Much as the dark sky is succumbing to "**progress**" in the form of urban glare, Krause says it's getting a lot louder out there: After recording 15,000 creatures and 3,500 hours of marine and terrestrial habitats in the field, Krause

says that 25 percent of the original recording locations have been destroyed as pristine environments. Thirty years ago, 10 hours of recording produced an hour of finished tape (with no artificial noise in the background), but in North America, at least, he must now tape 2,000 hours to get an hour of finished tape. (Krause describes his career in "Into a Wild Sanctuary" in the [bibliography](#).)

**Music: How did [the ancients](#) do it?**



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