

## *About the Cover Art*

### Cover Essay: Sounding Off

There are natural and unnatural features in the cover by Roesel von Rosenhof that draw our attention. Presumably, the monument bearing Virgil's salute to the marvels of small creatures was the artist's tactic to introduce his own admirational reverence for the European amphibians that he studied so closely. Perhaps he also intended a wry comment on human intrusions into natural environments, which he depicted carefully in his other paintings without such artificial elements. However uncertain we may be about the motivations of the artist-naturalist, to viewers like us, some 250 years later, this large object connotes our disruptive effects on natural settings.

Never mind that, as pictured, various amphibians can persist close to people if the quality of their environments is unimpaired by us. The current situation is that one-third of all known species of amphibians are threatened with extinction, and there are two prime causes: habitat destruction and degradation and an emergent infectious fungal disease.

Before reflecting further on this horrendous situation, let us consider the natural elements in the cover painting. There is ample plant life about the pond, pollinating insects at work, and a diversity of the herpetofauna. Most striking is the calling frog, conspicuous because of the vocal sac balloons on the sides of his head. This rang bells in my memories of experiences with such creatures.

First, I recalled a deafening evening when thousands of spadefoot toads were braying in rain-filled concrete artillery cachements on a coastal Carolina island. Their din was amplified to painful levels as the sounds reverberated from the caisson walls. Next, I remembered a night on the nearby mainland comparing hylid frog choruses from one swampy locale to another. Some readers have had similar experiences of hearing a multispecies assemblage of frogs and then approaching closer to see what is making such won-

derful sounds. As one comes nearer, different species and individuals cautiously drop out of the chorus so that it is no longer the glorious cacophony that originally attracted one's attention. Indeed, as one moves even closer, the entire chorus is likely to shut down.

Another of my auditory memories is of a magnificent star-filled night atop an Appalachian mountain. Companions and I heard the forest floor moving. The fallen leaves, rotting bark, and small ground plants were not rustling because of wind or their own will. The sounds came because of the movements of salamanders who inhabited the forest floor.

Such incidents metaphorically call to mind that these creatures are contributing to ecological symphonies, the music of the living wild. When various members of an orchestra drop out, the range of music in the group's repertoire diminishes and future concerts will be correspondingly limited. In biological terms, when species disappear, ecosystem functions are impaired and evolutionary potentials vanish.

As we recognize the ongoing tragedy and resolve to take corrective actions, whether from altruistic or selfish motivations, what should we in fact do? There are immediate emergency responses – for one, securing species vulnerable to the infectious fungus in survival assurance populations removed from the wild; for another, securing other species from extinction by protection of their abodes and living conditions.

There are broader long-term responses, principally dealing with our ignorance of these animals. Roesel's exquisitely exact artistic renderings of amphibian species and their anatomy, reproductive activities, and developmental stages raise an epochal question: What do we know two and a half centuries later? To be honest, the pall of ignorance is vast and fundamental: we have named only

about two-thirds of the species in this class of vertebrate animals and know little of their lives. Yet, with modern tools for genomic dissection and a sufficient corps of newly inspired scientists, we could shed this cloak of ignorance. Further, we could molecularly determine their marvelous body defense systems, intrinsic and extrinsic. Further still, we could use such extended knowledge to combat the fungal plague that is rapidly removing these creatures from the earth. Also, incidentally, we could perhaps discover new means to deal with our own vulnerabilities to a host of microorganisms.

Another large order for action is to document and understand the environmental maladies that beset thousands of species through changed climatic regimes and pollution.

The greatest needed action is universal – it concerns our regard and respect for the very existence of other living beings. Despite evidence for innate biophilia, we seem to assume that we have naturally superior qualities that make us the appropriate conductors of the global orchestra. Also, consciously or not, with the advent of agriculture, we have become the composer-in-residence for ecological symphonies now played planet-wide in clangorous fashion.

Such hubris, arrogance, and selfishness will unfortunately prevail until we change to become more fully the rational yet caring creatures we often claim to be. Looked at from afar, humans are the ultimate example of a successful alien species – displacing or consuming native species and transforming environments to be niches for our comfort and numbers. We have devised means of containment, if not complete control, of other alien species. Can we apply these principles to our populations and noxious effects on the rest of nature?

The introspection needed for such species-wide behavioral change cannot be inculcated overnight. Yet, there are avenues we could explore, such as celebrating the achievements of other living entities – acknowledging the evolutionary patents they have on the multitude of life processes. Another tack in our revolutionary quest would be to resuscitate regard for noblesse oblige. If we are truly noble, we will respect the right of other beings to exist. We will see ourselves as fellow players in the global orchestra celebrating life.

The contrary course on which we are currently accelerating will truly be monumentally fateful for all. Do we wish to be seen in eternity as a collective Ozymandias, entombed with our selfish ignoble sneer of cold, uncaring command of the earth?

In closing, I aver that from our palette of knowledge we should emulate Roesel's dedication so that we could celebrate the salvation of an entire class of fellow beings. Such a revolutionary enterprise involving maximal change in our caring behavior would bring benefits to the integrity of living communities worldwide and to our own welfare. Excelsior!

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## THE ARTIST

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Born near Arnstadt, Germany, our cover artist, August Johann Roesel von Rosenhof (1705–1759), achieved renown as a court painter in Denmark while still in his early twenties. Shortly thereafter he returned to Germany, and upon viewing Maria Sybilla Merian's exquisite painted studies of Surinam insects and flora, he was inspired to commence his own bound series of prints of German fauna. Roesel first authored and illustrated a seven-volume, systematic, and naturalistic study of German insects, *Der monatlich-herausgegebenen Insecten-Belustigung* (1740), for which detailed and thorough achievement he is considered the forefather of German entomology. In 1758, Roesel published his natural history of German frogs, *Historia Naturalis Ranarum Nostratium*. The hand-colored, engraved frontispiece of this same work provides the cover art for this issue of *EcoHealth*. In the right foreground, Roesel leads our eye into his scene along the sinuous tail and body of the ebony and golden European fire salamander (*Salamandra salamandra*), then up along the line of the sand lizard (*Lacerta agilis*) and back down through the flowering rose to the dependent European tree frog (*Hyla arborea*), which points to the partially obscured and crumbling block around which cluster and crouch three European common frogs (*Rana temporaria*) and one, apart and in shadow, natterjack toad (*Bufo calamita*). As Roesel's seven lovingly detailed amphibians gambol, notice the Latin inscription in the background, from Virgil's *Georgics*, adjuring our admiration of the little things in nature.

### Cover Art

*Historia Naturalis Ranarum Nostratium/Die natuerliche Historie der Frösche hiesigen Landes*, by August Johann

Roesel von Rosenhof (1753–1758). Full title: *Historia Naturalis Ranarum Nostratium, in qua omnes earum proprietates, praesertim quae ad generationem ipsarum pertinent, fusius enarrantur*. Cum praefatione Alberti v. Haller, edidit accuratisque iconibus ornavit Augustus Johannes

Roesel von Rosenhof, *Die naturliche Historie der Frösche hiesigen Landes*, Norimbergae: Fleischmann, 1758 [6], 116p, 24 plates; col. Illus; 43 cm.

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