

# FROM THE Director



## PUBLIC PARTICIPATION IN SCIENTIFIC RESEARCH

Observing, collecting, recording and interpreting of data — in fields as varied as archeology, astronomy, botany, geology, meteorology, mineralogy, ornithology, paleontology and zoology — by those without formal scientific training has led to many research advances.

In England, where countryside pursuits have long been a tradition, colorful stories of such activities abound. For example, in Lyme Regis on the English Channel coast, tourists learn about Mary Anning (1799-1847) who first collected ammonites, ichthyosaurs and plesiosaurs as a teenager from local cliff outcrops of Jurassic strata. American Stephen Jay Gould (1941-2002), a renowned evolutionary biologist and popularizer of science, noted: “Mary Anning is probably the most important unsung (or inadequately sung) collecting force in the history of paleontology.”

In the US, for example, an annual Christmas Bird Count began in 1900 and, today, Cornell University’s Lab of Ornithology reports that its eBird database enables birders to track any of the Earth’s 10,005 bird species. Almost worldwide observations on 8,650 bird species have helped to document the declines of some species, range expansions of others, and spread of avian diseases.

In her book “Planet under Stress,” physicist Ursula Franklin advocated: “The task of the future is to build knowledge and understanding among and between citizens and scientists, so that the distinction between the two groups vanishes — so that both become citizen scientists, potentially able to solve our problems together.” A quarter century later, her vision is busily unfolding. Rising public interest and anxiety are conjoined with the invitation of scientists in rapidly growing numbers to assist with research in the natural sciences. Surges in environmental awareness, community volunteerism and social media, plus the ubiquity of Internet access and cameras, have exponentially advanced what is possible in this exciting and needed arena. The frontier of citizen science work also now includes biochemistry, entomology, microbiology, cancer research and climate change. In today’s world, it is often concerned members of the public who spur the interest of researchers, not the other way around, especially in ecological or environmental matters.

A new Citizen Science Association (<http://citizenscienceassociation.org/>) has recently been formed to encourage and promote public participation in scientific research. Its inaugural conference was held in San Jose, CA, and free memberships are currently available. I am delighted to inform you that the North Carolina Museum of Natural Sciences, in partnership with the Office of Public Science in the College of Sciences at North Carolina State University and the Greater Raleigh Visitors and Convention Bureau, will be hosting the Citizen Science Association’s second conference in February 2017.

Given the phenomenal history of public participation in scientific research, it is ironical that citizen science — a term introduced by the scientific community — is not yet widely known by the public! As supporters of the NC Museum of Natural Sciences, please help to get the word out. I welcome your publicity ideas. To learn more about the citizen science movement and to discover opportunities for doing research together, visit the Citizen Science Center on the first floor of the Museum’s Nature Research Center, or explore online resources such as CitSci.org, SciStarter.com and [Naturalsciences.org/research-collections/citizen-science](http://Naturalsciences.org/research-collections/citizen-science) (for a list of current Museum-run projects).

Welcome to the engaging world of citizen science!

A handwritten signature in cursive that reads 'Emlyn Koster'.

Emlyn Koster, PhD  
Museum Director

## Dandelions

*Welcome children of the Spring,  
In your garbs of green and gold,  
Lifting up your sun-crowned heads  
On the verdant plain and wold.*

*As a bright and joyous troop  
From the breast of earth ye came  
Fair and lovely are your cheeks,  
With sun-kisses all aflame.*

— Frances Ellen Watkins Harper



## INSIDE

- 2 Get Soiled: Visit Dig It!
- 3 The Secret Life of Dandelions
- 4 What a Cro! Introducing the Carolina Butcher
- 5 Aetosaurus: Experiments in Evolution
- 6 Nestwatch: Lend us a Hand, and a Yard
- 7 Baby Skunks and the Evolution of Stink
- 8 Keeping the Crayfish Tradition
- 9 Short Reports
- 12 Friends of the Museum
- 13 Program Calendar

## ON THE COVER

A newly discovered crocodylian ancestor may have filled one of North America’s top predator roles before dinosaurs arrived on the continent. *Carnufex carolinensis*, or the “Carolina Butcher,” was a 9-foot-long, land-dwelling crocodylomorph that walked on its hind legs and likely preyed upon smaller inhabitants of prehistoric North Carolina ecosystems, such as armored reptiles and early mammal relatives. Read all about it on page 4.