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## **"Evolution and Its Discontents: A Role for Scientists in Science Education"** [3]

The scientific community needs to increase its involvement in defending science education -- especially evolution -- according to a coalition of seventeen scientific and educational societies, including the National Academy of Sciences, the National Science Teachers Association, the Federation of American Societies for Experimental Biology, and the American Institute for Biological Sciences. The coalition's [editorial](#) [4] -- entitled "Evolution and its Discontents: A Role for Scientists in Science Education" and appearing in the January 2008 issue of *The FASEB Journal* -- reports the results of a public opinion survey aiming to ascertain "attitudes toward science and scientists, views on evolutionary science in the context of education, and means through which the scientific community can effectively bolster support for teaching evolution and related subjects."

In a January 2008 press release from FASEB, the editor-in-chief of *The FASEB Journal*, Gerald Weissmann, [commented](#) [5], "The bottom line is that the world is round, humans evolved from an extinct species, and Elvis is dead. This survey is a wake-up call for anyone who supports teaching information based on evidence rather than speculation or hope; people want to hear the truth, and they want to hear it from scientists." With reference to creationism -- 28% and 31% of respondents to the survey agreed with statements that "all living things" or "humans and other living things," respectively, were created in their present form -- Weissmann added, "In an age when people have benefited so greatly from science and reason, it is ironic that some still reject the tools that have afforded them the privilege to reject them."

According to the coalition's editorial, the survey shows "a clear need for scientists to become involved in promoting science education. Challenges to teaching science undermine students' understanding of the scientific method, how scientific consensus develops, and the distinction between scientific and non-scientific explanations of natural phenomena. If our nation is to continue to develop the talent necessary

to advance scientific and medical research, we must ensure that high standards in science education are maintained and that efforts to introduce non-science into science classes do not succeed. Failure to reach out effectively to a public that is supportive of science and open to information from the scientific community is not just a missed opportunity, it is a disservice to the scientific enterprise."

Of the 1000 likely voters polled, half were asked about their views on the evolution of "all living things"; 61% accepted that "all living things have evolved over time," with 36% thinking that all living things "evolved due to natural processes such as natural selection" and 25% thinking that "a supreme being guided the evolution of living things for the purpose of creating life in the form it exists today." In order to investigate whether the idea of human evolution is especially problematic, the other half of the respondents were asked about their views on the evolution of "humans and other living things"; 53% accepted evolution, with 32% thinking that humans and other living things evolved through natural processes and 21% thinking that they evolved with guidance from a supreme being. "Compared with other surveys," the editorial comments, "we found weaker overall support for creationism."

As for what is taught in the science classroom of the public schools, the editorial reports, "Although public opinion is often characterized as polarized, there is considerable uncertainty about what to teach in public school science classes, particularly with regard to including certain religious perspectives. Thirty-two percent of respondents in our study were unsure about teaching creationism, and 41% were uncertain about teaching intelligent design. By comparison, 22% expressed uncertainty about teaching evolution. Consistent with other studies, however, more respondents favored teaching evolution (53%) than creationism (36%) or intelligent design (27%) in public school science classes. These data show that a majority of people favors -- and even more may be open to -- teaching evolution in science classes."

On the basis of the survey, the coalition's editorial recommends two main avenues for strengthening public support for evolution education. First, highlighting the connection between evolutionary biology and medicine: 61% of respondents regarded the contribution that evolution makes to modern medical science as a convincing reason to teach evolution in science classes. (Not considered in the survey were "the contributions that evolutionary science makes to other fields, including agriculture, forensics, and even software engineering.") Second, emphasizing the practical applicability of the skills imparted by science education in general: "Communicating the value of learning science, including evolution, for developing analytical skills that are widely applicable beyond the classroom may strengthen public support for all types of science," the editorial commented.

The editorial concluded that scientists are in a good position to help to strengthen such support. "Among respondents presented with a list of people who might explain science to the public, 88% expressed interest in hearing from a scientist, and almost as many were interested in hearing from a science teacher (85%) or a doctor or nurse (84%). On the topics of evolution, creationism, and intelligent design, most respondents expressed interest in hearing from scientists (77%), science teachers (76%), and clergy (62%). ... These data indicate that Americans respect the expertise of science and education professionals and also look to clergy for guidance on scientific issues of potential relevance to religion. The value of encouraging each of these groups -- including scientists who hold religious beliefs -- to become involved in promoting quality science education cannot be overstated."

Versions of "Evolution and Its Discontents: A Role for Scientists in Science Education" are appearing in a variety of scientific journals, including *ACA RefleXions*, *The Pharmacologist*, *Physics and Society*, and *Developmental Biology*. Information about these, along with supporting material, a PowerPoint presentation, and a complete list of members of the coalition, is available on the [FASEB website](#) [6]. Also

hosted there is a useful set of [evolution resources](#) [7], including background information, tips and tools for communicating about evolution, and FASEB's own [statement](#) [8] (PDF) on teaching evolution, which reads in part, "Evolution is among the most thoroughly tested theories in the biological sciences. ... Removing evolution from the classroom, or misrepresenting evolution as a flawed theory, deprives students of one of the most important tenets of science and the basis of our understanding of biology and medicine."

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