PART III

CONSERVATION GENETICS: WHAT SHOULD WE CONSERVE?

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HR: I m Howard Rosenbaum. I am a conservation biologist with the Science Resource Center of The Wildlife Conservation Society. And on behalf of both institutions The American Museum of Natural History and The Wildlife Conservation Society I m happy to welcome you to the final session today in Kaufmann Theater, entitled Conservation Genetics: What to Conserve?

One of the major applications of genetics towards conservation is the goal to determine at what levels we should focus our conservation efforts. Are there natural entities in nature that can be identified, based on genetic data, that will help guide conservation priority setting and management decisions? At what levels in the hierarchy of life do these entities exist and can be identified?

The introduction of the term ESU, or evolutionary significant unit, by Ollie Ryder, was used to describe the fundamental unit that should be the focus of conservation efforts. It has since been derived, in various forms, to delimit a range of levels among organisms from management units to find, based on reciprocally monophyletic groups, to operational criteria necessary for designating phylogenetic species.

At the root of these varied outgrowths of the ESU are philosophical differences concerning the answers to questions at varying levels, such as: What is a species? How can species be identified using genetic information? And can we use genetic information at the species population boundary to objectively inform and implement conservation measures for these locally threatened populations or entire species? And, more broadly, as you ve heard a number of speakers mention today, throughout the symposium: Can we translate the significance of these units into protection of viable habitats?

These widespread debates about what constitutes the fundamental unit of conservation have occurred with fervor and passion for the last 20 years among those involved with the fields of systematics, population biology and conservation genetics. And many of the advocates of these diverse approaches are here among us today. I m not insinuating that the discussion will be as passionate as the discussion last night

between Jeremy Rifkin and Val Giddings but, in some respects, the search for the ultimate unit might be equated to the Holy Grail.

Oftentimes the discussions appear so divergent that we appear to be speaking different languages. And in the course of the next two hours we should not expect a concrete resolution to this discussion. It is our hope that this session brings together some of these diverse thoughts, in the same form, surrounding pertinent topics to evaluating units for conservation management as the field of conservation genetics enters the Genomic Era.

The next four speakers have contributed a great deal of research to the debate and discussion of defining units of conservation. While they may not entirely agree with one another on all issues, what should not get lost is that their points of view are essential if the attempts to define conservation units from management of populations to protection of species are to occur. This is especially true based on increasing amounts and types of genetic data being generated, as the loss of biodiversity, viable habitats and threats to populations and species continues at ever-alarming rates.

Our first speaker, Dr. Craig Moritz, will attempt to clarify how best to represent biological diversity around the species level for the purpose of conservation management ranging from criteria recognizing species, to how to best identify and manage genetic diversity within taxa. Having been a professor at the University of Queensland, Craig has moved to California and is currently Director of The Museum of Vertebrate Zoology, Professor in the Department of Integrative Biology, and the Virginia and Robert Gill chair in natural history at the University of California, Berkeley. He is the author of numerous publications, and his publication in 1994, Defining Evolutionary Significant Units for Conservation, has helped to bring the issue of management units to the forefront of conservation.

His talk today is entitled Units in Conservation Genetics: What Is Real; What Is Useful? It s my great pleasure to introduce Dr. Craig Moritz.

(Applause)