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PHOENIX RISING FROM THE ASHES: 42-YEAR HISTORY OF CHANGING ECOLOGY AND RESTORATION OF THE HAWAIIAN GREEN TURTLE

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In 2012 the genetically discrete and geographically remote Hawaiian green turtle population was downlisted within IUCN's Red List to the category of Least Concern following a comprehensive assessment by the IUCN Marine Turtle Specialist Group (see). For the past 40 years Hawaii's green turtles have exhibited new behaviors and adaptations along with their increasing numbers and concomitant expansion into new habitats. These favorable changes have included: significant increases in terrestrial basking; nesting in the Main Hawaiian Islands; formation of underwater cleaning stations; daytime foraging in shallow water near shore; close co-existence with and tolerance of people; feeding on new types of vegetation; and the use of streams and rivers for underwater resting. Even more beneficial changes and acclimation can be expected in the future, including shifts in nesting to adapt to climate change and sea level rise, as sea turtles have successfully done with resiliency for millions of years. Several other sea turtle populations besides the Hawaii stock are also showing remarkable restoration from over-exploitation caused by efficient fishing technologies and human encroachment into previously pristine turtle habitats. At the same time there are many sea turtle stocks at seriously low levels that continue to decline. This dichotomy in sea turtle conservation status is one of the great challenges of our time in balancing appropriate protective measures along with limited sustainable use, where such harvest and other forms of human utilization might be legally allowable and advantageous to both turtles and people. The natural direction toward which we should be moving regarding sea turtle conservation, as expressed by the Sea Turtle Association of Japan, is "to bring back rich and plentiful nature that allows and tolerates a diversity of values and world views." In light of their 40-year rise to abundance, Hawaiian green turtles constitute a unique experimental model to comprehensively understand the dynamics of a recovering sea turtle population. In addition conservation practices in Hawaii, founded upon four decades of research results, can serve as a real-life learning ground for people in other regions striving to save and sustain their own charismatic and culturally important sea turtle resources. Successful conservation programs that endure are best built with local communities as their foundation. National legislation and international conventions, based on sound ecological principles, clearly also have importance. However, strategies for conservation are made robust and equitable when they integrate cultural and traditional components forged at the local level by the very people closest to the turtles and their environment.