

Form B-5

Date (日付)

29 Dec. 2012 (Date/Month/Year: 日/月/年)

Activity Report -Science Dialogue Program-
(サイエンス・ダイアログ事業 実施報告書)

- Fellow's name (講師氏名): David Hembry (ID No. P12080)
- Participating school (学校名): Nagoya Koyo Senior High School
- Date (実施日時): 12 December 2012 (Date/Month/Year: 日/月/年)
- Lecture title (講演題目): (in English) "Coevolution and Biodiversity"
(in Japanese) 「共進化と生物多様性」
- Lecture summary (講演概要): Please summary your lecture 200-500 words.

My name is David Hembry, and I am an evolutionary biologist from the United States working at Kyoto University. I arrived in Japan in September this year, although I have lived in Japan before. In the first part of my lecture, I will talk about my research in evolutionary biology studying coevolution. Coevolution is when two or more different species interact with each other and influence each other's evolution. There are many important examples of coevolution in nature, such as coevolution between plants and the insects which pollinate their flowers, the birds and mammals which eat their fruit, and the fungi which help them obtain nutrients from the soil. In the oceans, corals coevolve with symbiotic algae which live inside their cells, and marine animals evolve defenses and counter-defenses as they attack and feed on each other. Because of this, scientists think that coevolution is very important in the evolution of biodiversity on Earth. Next, I will introduce my own research at Kyoto University on coevolution between *Epicephala* moths and *Glochidion* trees. These moths and trees have coevolved to have a relationship where they depend on each other for survival. *Epicephala* moths need *Glochidion* seeds as food for their larvae. *Glochidion* trees need *Epicephala* moths to carry pollen between their flowers so they can reproduce. The moths thus carry pollen between flowers and then lay their eggs in the flowers. The larvae hatch and feed on some but not all of the *Glochidion* seeds. In my research, I study how *Glochidion* and *Epicephala* have coevolved on remote islands in the South Pacific Ocean, particularly in French Polynesia. I will talk about my fieldwork in the south Pacific, as well as how in the laboratory I use DNA to study how the moths and trees have coevolved.

In the second part of my lecture, I will talk about how I became a scientist and introduce some information about my home country, the United States. I became a scientist because ever since I was a child, I was fascinated by other living things. I grew up in California and used to catch all kinds of small animals and study natural history when I was a child. I like to be a scientist

because it allows me to retain the same curiosity and sense of wonder about the natural world that I had as a child. Finally, in keeping with the themes of this lecture, I will talk about some of the different ecosystems that are part of the United States. The United States is the fourth largest country in the world, and has a great diversity of ecosystems. Some of these ecosystems (like temperate forests) are similar to ones in Japan, but others are different. I will give an overview of the geography of different ecosystems in the United States. Then I will talk more in detail about three unusual ecosystems: the California chaparral, deserts, and the Florida Everglades, and show some of the animals and plants found in each.

- Language used (使用言語): English (with some Japanese)

- Lecture format (講演形式):

◆Lecture time (講演時間) 90 min (分), Q&A time (質疑応答時間) 20 min (分)

◆Lecture style (ex.: used projector, conducted experiments)

(講演方法 (例: プロジェクター使用による講演、実験・実習の有無など))

プロジェクターを使用した上、昆虫の標本と生きている昆虫を学生に見せました

◆Interpretation (ex.: assistance by accompanied person, provided Japanese explanation by yourself) (通訳 (例: 同行者によるサポート、講師本人による日本語説明))

私は自分で日本語で説明しました

◆Name and title of accompanied person (同行者 職・氏名)

私は一人で行きました

◆Other note worthy information (その他特筆すべき事項):

- Impressions and opinions from accompanied person (同行者の方から、本事業に対する意見・感想等がありましたら、お願いいたします。)