**Ecological Education by Phoenix Fund**

Nowadays Ecological Education (EE) has occupied a role in conservation strategy based on the belief that EE has the potential to instill knowledge on, and values for, the preservation of biodiversity—and ultimately to change the behavior of the country‘s next generation of resource users.

The Phoenix Fund has early recognized the instrumentality of EE in their conservation efforts. Since 1998, the Phoenix Fund has begun working with outreach professionals, opening ecological centers across the region to coordinate conservation activities of educators in Primorye.

Phoenix Fund’s Ecological Education program is rooted in a way that is compatible with and supportive of the standards-based school curriculum, complementing it with regional component. To this end, Phoenix has developed crosswalk materials connecting species conservation and environmental protection framework with Ecology, Biology, Literature, English Language, and Geography literacy.

We believe in the critical role of the educator and the importance of a holistic approach that actively engages learners in a complete experience. Our educators use best practices that appear to drive positive results in knowledge, awareness, skills, attitudes, intentions, behavior, and enjoyment that include (according to survey conducted in March 2017):

* Dosage (longer experiences) (80% of educators);
* Experiential approaches (100% of educators);
* Investigation, issue-based, and project-based approaches (60% of educators);
* Reflection and relevance (100% of educators);
* Efforts to explicitly provide students with a sense of empowerment (100% of educators);
* Incorporating social components, such as involvement with communities facing real environmental problems and active group discussion(80% of educators);
* Designing programs with specific goals in mind (100% of educators).

To ensure a program will work Phoenix Fund identified five factors to focus on: 1) buy in from the beginning, such as cultural appropriateness and local ownership; 2) materials, including curriculum guides and reference materials; 3) teacher training, particularly involving the teachers in materials development, training teachers to be trainers, and evaluation; 4) funding; and 5) maintaining program support.

Phoenix uses approach to planning and managing educational projects that helps us to be clear both about what our projects are doing and what they are changing. Our program has inputs, activities, outputs and outcomes.

**Input**

Phoenix Fund’s EE program is conducted in:

Khasan district – Rodnichok eco-club by Natalia Drobysheva;
Lazovsky district - by Galina Dikalyuk and other specialists of educational department, United direction of Zov Tigra National Park and Lazovsky Nature Reserve;
Terneisky district – Uragus eco-club by Galina Maksimova;
Krasnoarmeisky district –Namba eco-center by Valeria Nazarova;
Pozharsky district – Pervotsvet eco-centre by Natalia Prodan;
Kirovsky district – Ussury eco-club by Galina Goy;
Arseniev – Young naturalists centre by Olga Arkhipova;
Vladivostok – Eco-theatre by Alexandra Vinogradova.

We closely cooperate with N. N. Dubinin Boarding School for Gifted Children, a branch of the Vladivostok State University of Economics and Services (VSUES); Primorsky Institute for Further Training of Educators (PIFTE), regional social rehabilitation center for disadvantaged and at-risk children Sail of Hope, specialists of tourism and education departments of protected areas, and others.

The Phoenix Fund develops, publishes and disseminates educational materials (posters, leaflets, books, CDs, field guides, etc.) and teachers’ reference books for use in Ecology and Biology classes. In 2003-2004 and 2016, Phoenix produced two sets of colourful posters on the Amur tiger and the Amur leopard with teacher’s guides containing information on biology and ecology of these big cats, threats to their survival and conservation efforts. They served as important reference materials at schools of the region, and teacher’s guide provided valuable information for teachers who wanted to develop their lessons on big cats. In 2007-2008, an Educator’s Tool Kit on the Amur Tiger and Tool Kit on the Amur Leopard, including a Teacher’s Guide (36 lesson plans) and a DVD (slide presentations, video fragments, photographs, etc.), were developed. Between 2004 and 2012, The Phoenix Fund in close cooperation with the Far Eastern Federal University published several field guides, namely Animals of the Ussuriiskaya taiga (2004), Inhabitants of the Sea of Japan (2007), Flora of the Ussuriiskaya taiga (2012), as well as a three-volume edition Animals and plants of the south of the Russian Far East (2012). In 2014, an Educator’s Tool Kit on Salmon, bookmarks on salmon for children and leaflets for adults were developed and published. In 2016, the second edition of the Educator’s Tool Kit on the Amur Tiger was published.

**Activities**

Experienced educators conduct regular ecological lessons, lectures, slide presentations, festivals, summer camps, actions in eco-centres, contests, performances, workshops and other activities for children (both kindergarten and schoolchildren) and adults.

**Outputs**

Every year over 25,000 children attend the eco-classes organized by the Phoenix Fund. We run EE campaign in 12 administrative districts of the Russian Far East. Our educators reach about 100-115 schools all over Primorye. Besides Primorye, Phoenix provides methodological support and disseminates its educational materials to Khabarovsky province, Jewish Autonomous region, Amur region, Sakhalin region, Kamchatka province.

**Outcomes**

To describe the true changes that occur to students, their parents and communities as a result of our program the following indicators are regularly measured:

* increase in knowledge of the subject,
* number of students that obtained new skills (planting trees, conducting ecological investigations, installing camera-traps, making reports on ecological topics, identifying species by their tracks, using field guides, reading maps, etc.),
* number of local nature reserves and national parks visitors,
* number of eco-festivals participants,
* number of drawing contest entries,
* number of participants and laureates of eco-conferences and competitions,
* number of ecological actions,
* number of ecological theatrical performances.

These are the actual impacts, benefits, or changes for our target audience during or after our program, expressed in terms of knowledge, skills, values and behaviours.

**Impact**

The longer-term change that we hope our project will help create reflects our vision of a preferred future and underlines why the project is important. The expected impact of our EE programme would be stable or increased number of Amur tigers, leopards and other threatened species; reduced poaching,habitat destruction and human-induced fires in the region; increased ecological consciousness and improved awareness of ecological problems and resident endangered species among local residents.

**Evaluation** is an integral part of our Ecological Education program and the evaluation plan was developed in the planning phase of the program. Key reasons for evaluating our programs include measuring learning, assessing progress, improving the quality of the program and communicating results.

The evaluation plan focuses on environmental education materials, professional development for environmental educators, non-formal environmental education programs, and ecological outreach.

Annually, we conduct case studies among both students and educators in forms of questionnaires, surveys, interviews, focus groups and observations. Evaluation allows us to think about what has been learned, what we might do differently next time and how we can build on the most successful areas of our programme. It can also contribute to changes and development in our organisation.

Every March we carry out a survey among our educators to find out and review their needs. Analysing results of the survey helps us:

• respond to real needs, as established through research and consultation with educators;

• target a specific audience;

• provide something new and appropriate for the audience;

• fit in with priorities at local, regional and national level.

We developed a multiphase study, with the first phase designed to identify baseline levels of environmental literacy among students (schoolchildren) prior to the beginning of our Ecological Education program implementation. With Phase One accomplished, these baselines serve as comparative measures for future assessments (opinion polls, interviews, knowledge surveys, etc.) undertaken by educators at the completion of environmental education course. Phase Two research sought to determine the level of environmental literacy of students who participated in environmental education programs conducted by our educators at their schools, in eco-centers and various ecological actions and events. Both Phase One and Phase Two provide the foundation for the future outreach work of the Phoenix Fund, which will explore more extensively related variables that might affect environmental literacy.

Phoenix conducted two opinion polls among schoolchildren in Krasnoarmeisky district in order to assess changes in their awareness of tiger conservation issues and attitude towards this big cat. When conducting the opinion poll, we used a questionnaire with 10 questions about tiger elaborated jointly by the Phoenix Fund and Michiel Hötte of WCS-Russia Program. Over 100 interviews were conducted during each steps of the survey. We selected only children ranging in age between 12 and 17. The survey participants were not pre-selected. The Phase One of the survey was conducted among the children who have never attended lessons devoted to Amur tiger before. Then, 11 months later, after the Phase Two opinion poll was carried out with the same schoolchildren from the same settlements after they listened to a course of eco-lessons and attended various in-school and outdoor events from Phoenix’s EE programme devoted to Amur tigers. The results of the first and second polls were compared in order to evaluate changes in children’s knowledge. Comparing the general results of two opinion polls, we saw 15-25% increase in knowledge of tigers among the educated respondents. These data from the opinion polls helped us understand that our educational program works well and that every year more and more people become well-aware of tiger conservation issues.