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INTRODUCTION OF CONSERVATION TO ELEMENTARY STUDENTS IN ARIZONA

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ABSTRACT. To create a lifelong concern for conservation in Arizona's citizens of tomorrow, the Orchid Society of Arizona decided, 9 years ago, to concentrate on introducing first to eighth grade students to orchids. A hands-on approach was selected as the best way to introduce children to conservation. Each student receives a *Phalaenopsis* seedling to repot along with all the necessary potting supplies. Teachers ask each student to bring one clean, plastic, gallon milk jug to the program, during which, each milk jug is fashioned into a mini-greenhouse for the newly repotted seedling. The goal is to provide each student with an adult mentor to help with the repotting. Each program begins with a brief description of the blooming orchid plants on display. Most students have heard about rain forests, but generally they do not associate the plants on display with either the rain forest or conservation. Students are encouraged to ask questions and inspect the display plants. Most children are excited to repot their seedlings, and often their enthusiasm is difficult to restrain. To stress the importance of biodiversity, program team members mention recent discoveries made in rain forests, such as new chemicals and new cures for diseases. Without conservation, the world will have no rain forests, which means no new chemicals or medicines derived from rain forest plants. The presenter used volunteers from among the IOCCII registrants and a keen sense of humor to demonstrate how the orchid workshop is conducted with school children.

Key words: Elementary school programs, orchids, conservation, education

INTRODUCTION

Too many adults, who think of themselves as good stewards of our planet, share several counterproductive commonalities: silence with other adults on the subject of conservation, lest they be considered "tree huggers"; failure to actively participate in or publicly lend support to conservation activities; and failure to communicate to their children the vital significance of preserving our natural resources. It often has been said that children learn by example, and having been a child myself, I can testify that this is so. The most valuable lessons I learned were not from my childhood peers, but from my parents, who taught me respect for all plant life; from my high school botany teacher, who encouraged me to pursue my passion for plants; and of course, from my orchid mentor, whose interactions with children inspired me to consider teaching the youth of Arizona to appreciate orchids.

In the Valley of the Sun (a common term used to describe the Phoenix Metro area), the sun shines for ca. 320 days each year; yet few homes are solar-powered. Also the huge new homes under construction are rapidly multiplying with apparently no regard for the conservation of our most precious natural resource: water. Many of these homes have non-native lush lawns that must be continuously watered for at least 6 months—the length of the Arizona summer. Additionally, during the winter months, summer lawns are replaced with non-native winter grasses, which must be irrigated to remain lush. The numerous golf courses already in existence and new ones, ubiquitous for each new housing development in this area, are extremely heavy users of water. Such non-essential usage of water is rapidly lowering the water table in Arizona. The average annual rainfall in the low desert is 7 inches. Our state is in the fourth year of a drought situation, but no restrictions on water usage in the Phoenix Metro area have been forthcoming from any state regulatory commission. Children and young adults are well aware of their surroundings. When they see an abundance of landscaping that utilizes non-native plants, would they conclude that there is a water crisis? In many of the Phoenix Metro areas, there is a swimming pool in nearly every residential backyard. When children see new swimming pools being constructed at a rapid rate, would they be concerned about conserving water?

METHODS AND MATERIALS

Numerous members of the Orchid Society of Arizona are native Arizonans, and quite a few

others have lived in Arizona for at least 30 years. With despair, we have observed an escalation of conspicuous consumption and the unrestricted paving over of the pristine desert. In 1995, we decided to take action and embarked on a community service agenda. We decided to introduce school children, from kindergarten through eighth grade, to the subject of conservation and the importance of biodiversity. Our free hands-on orchid workshops offered to any school in the state that requested them was an experiment that took on a life of its own, from its inception; and the popularity of our programs continues with no end in sight.

Phoenix is located in Maricopa County; and in this one county, urban sprawl has now conjoined at least eight cities with a combined population of 3.5 million people. There are more than 1000 schools in Maricopa County, and it is very possible that we will never be able to present programs for all the schools located in this county. In addition, we have presented programs in other counties, far a-field from the Valley of the Sun!

When city dwellers contemplate growing plants in their apartments or homes, they usually do not consider the Orchidaceae family as plants suitable for the dry climate of the low Arizona desert. Orchid Society of Arizona (OSA) members frequently hear two erroneous assumptions: that orchids cannot be grown here because of our low humidity; and that copious amounts of water are necessary to keep orchids alive. At a time in the history of our planet, when conservation is of vital importance, it would appear that growing orchids would be a waste of water. A variety of orchids, however, can be successfully grown in the low desert, and they do not require any more water than does any other houseplant; and with a bit of ingenuity, the problem of low humidity can be solved.

OSA encourages entire families to become members of our orchid society. Our youngest member is 4 years of age, and his four siblings range in age from 5 to 14. To publicize the orchid workshops, OSA members, who are parents of school-age children, contact their children's teachers. The teachers in turn contact OSA. Then one teacher tells another teacher, at a different school, about our programs, and we have never had trouble filling our schedule. As our programs became more widely known in the various school districts in our state, we had to begin limiting the number of days per month that we could reserve for scheduling programs. We operate strictly on a first-come, first-serve basis. Additionally, we limit the size of each class to 30 students. We encourage teachers, teacher-aides, and parents to assist program team members so that each child has a one-on-one experience with a mentor. To counteract impatience in the students, we purchase *Phalaenopsis* seedlings that are near blooming size. A few of the seedlings already have begun to produce an inflorescence. When there are 30 students in a class, and we have only one seedling that is starting a bloom spike, we ask if there is a student who has a birthday on the day we present our program. The "birthday" student receives the more mature seedling, and no hurt feelings result amongst his/her classmates.

The only item that we request each student to provide for our hands-on program is a clean, plastic, gallon milk or water jug. The curiosity of the students is piqued by the odd request for them to bring the containers to school. They can't imagine what they will be doing with the jugs, but during our program, they discover how to fashion mini-greenhouses out of their containers. Our program team always brings spare containers, because some students unfortunately do not have milk containers at home.

We discovered that the students, to whom we introduced orchids in our hands-on programs, were amazed to learn that the ancestors of our beautiful, hybrid and seed-grown display plants were originally found in rain forests. Many had never seen an orchid before we brought our plants to their school. Some had seen TV programs on the Discovery Channel and were aware of rain forests, but they did not make the connection between rain forests and orchids, until we brought our blooming plants to their class. No matter the age of the students, all of them feel the need to touch and smell the flowers, and our volunteer program team members encourage the children to closely examine the flowers that appeal to them. Witnessing the beauty of our orchids leaves a lasting impression on the students. We encourage them to ask questions, and no students have ever been hesitant to do so. (When program presenters give students the impression that they are enthusiastic and passionate about their subject and present information in a somewhat humorous context, the children take their cue from team members and will also be enthusiastic, eager to learn, and have fun in the process!)

Before the students repot the *Phalaenopsis* seedlings that we purchase, one for each child, we present a brief introduction to orchids and the need for conservation of native habitats. It is apparent within the first few minutes of our introduction, how much information the students can absorb, and we can adjust our introductory remarks to be more or less comprehensive. A number of students have access to computers and the Internet, and after we present our pro-

grams, their teachers informed us that the students sought more information about the disappearing rain forests and the subsequent loss of biodiversity.

Conclusion

Program team members try to stay current on recent news about the rain forests, and they relay news that they think the students will find relevant. One particularly poignant and memorable moment occurred during a program we presented in May 1999, for a first grade class in Phoenix. One of our program team members mentioned that she had read a news report earlier in the month, that scientists had isolated a molecule from a fungus that was found growing on a plant in the rain forest of the Republic of the Congo. When this molecule was introduced to insulin-dependent rats, the rats no longer needed insulin. It is certainly a long journey from rats to people, but we explain to the children why they should care about rain forests, conservation, and biodiversity. One of the boys in the class had a look of amazement on his face. He raised his hand to get our attention, and told us that he was an insulin-dependent diabetic.

Introducing, in a personal way, the subject of conservation and the importance of biodiversity offers hope that these citizens of tomorrow might be better stewards of our planet than previous generations have been. Should one or more of the thousands of students, who have nurtured the orchid seedlings obtained at OSA workshops, choose plant systematics as a field of study—now that would be an outstanding result!

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