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AWARDS AND RECOGNITION IOWA ACADEMY OF SCIENCE 2000

DISTINGUISHED IOWA SCIENCE TEACHING

James Pease

Dr. James Pease has been an Assistant Professor of Animal Ecology and Iowa State University's Extension Wildlife Specialist since 1986. His teaching role is primarily in the areas of natural resources interpretation and environmental education. In addition to innovative undergraduate teaching, Dr. Pease annually presents about 50 workshop presentations to teachers, extension staff, and the general public. He has authored, co-authored, and edited 66 extension public information bulletins, 5 research journal articles, 4 environmental education curricula, and several videos. He has received numerous honors, most recently the Aldo Leopold Environmental Education Award for Lifetime Achievement in EE Excellence and Leadership in 1999.

Dr. Pease's success as an environmental educator can be shown by the large number of his former students serving as professional naturalists in Iowa's parks, nature centers, and county conservation boards.

DISTINGUISHED IOWA SCIENCE TEACHING

Floyd Sandford

Professor Floyd Sandford has been a member of the Biology faculty at Coe College for the past 30 years. He has instructed a wide variety of courses including General Biology, Genetics, Human Genetics, Animal Behavior, Anatomy and Physiology, and Introduction to Environmental Sciences among others.

His teaching strengths extend well beyond the classroom. For a dozen years he has taught Marine Biology on Dog Island in Florida. He has also brought students to Texas for a month-long course on ecology. His work with students also included being instrumental in the formation of the Coe College Green Club through which students participate in a wide variety of environmental activities.

Dr. Sandford has also regularly involved students in his research program. He and his students have become world experts in the symbiotic behavior of hermit crabs and sponges. His students have participated in the presentation and publication of this work.

DISTINGUISHED SERVICE AWARD

George Knaphus[1]

Dr. George Knaphus has a long history of distinguished service with the Iowa Academy of Science, the Department of Botany at ISU, and with the Prairie States Mushroom Club.

Dr. Knaphus has been a member of the Academy since 1963, and a Fellow since 1974. He has regularly attended annual meetings and presented papers in the Botany Section. He has encouraged many of his students to become involved in the Academy. He has served ably on many committees over the years including election, membership, farm, recognition and awards, and long range planning. He has been an involved citizen of the Academy.

At Iowa State University, Dr. Knaphus has been involved in the education of many students. He has directed the undergraduate Botany program, supervised many student teachers, and served as advisor to the Botany Club.

Dr. Knaphus has also contributed greatly to mycological interests in Iowa and beyond. He is a Charter Member of the Prairie States Mushroom Club and has participated in most of the clubs activities since its founding.

He has co-authored numerous publications including the book *Mushrooming and other Fungi of the Mid-continental United States* for which he also contributed most of the photographs. He has been extremely generous with his time in his work with amateur mycologists. He has run numerous field programs and given dozens of presentations to interested groups.

DISTINGUISHED IOWA SCIENTIST

Dr. Erwin E. Klaas

Dr. Erwin E. Klaas retired from his position as Leader of the Iowa Cooperative Fish and Wildlife Research Unit and Professor of Animal Ecology on December 31, 1999 after 25 years of distinguished service to Iowa State University and the State of Iowa. He has been a Fellow of the Iowa Academy of Science since 1976 and is a member of both the Conservation and Zoology sections.

Dr. Klaas has had a highly productive research career resulting in over 50 refereed journal publications. He has made important contributions to several areas over the years including the toxicology of pesticide residues in birds, wetland ecology, especially waterfowl habitat ecology and predator/prey relationships, the ecology of avian neotropical migrants, restoration and biodiversity ecology, and the ecology and management of game birds.

Much of Dr. Klaas' work has been of benefit to the State of Iowa. When Walnut Creek National Wildlife Refuge (now Neal Smith NWR) was establishing a long-term restoration research program there.

He designed and conducted the first faunal surveys. Most recently, Dr. Klaas has served as principle investigator of the Iowa Gap project. This project employs Geographic Information System technology to many landscape features, wildlife distributions and land stewardship. The project will result in habitat models for all the state's wildlife species and maps showing areas of high biodiversity that will be great use to wildlife managers.

Dr. Klaas has also actively participated in professional and scientific societies and citizens' organizations concerned with natural resources conservation. He served as President of the Iowa Chapter and North-Central Sections of the Wildlife Society. He has received numerous awards including two Story County Conservation Board Citizen Service Awards and several Quality Performance and Special Achievement awards from the U.S. Fish and Wildlife Service.

DISTINGUISHED FELLOW AWARD

Robert C. Summerfelt

Dr. Robert C. Summerfelt, Professor of Animal Ecology at Iowa State University is a fisheries and aquaculture scientist whose nu-

[1] With sadness, we learned that Dr. Knaphus passed away a few months after receiving this award.

merous contributions have been nationally and internationally recognized. During his career he has authored more than 130 publications and edited two books. He has been a member of the Iowa Academy and its Conservation Section since 1977.

Dr. Summerfelt's most recent and perhaps most significant scientific research contributions have been in the area of aquaculture, much of which has been focused on rearing of walleye, an important sport fish in Iowa. His project on intensive culture of walleye fry and fingerlings was selected by the American Fisheries Society for the Sport Fish Restoration Award in 1996. Dr. Summerfelt's preeminence in this area is perhaps best illustrated by his Regional Aquacultural Center, the *Walleye Cultural Manual,* in which he authored three chapters, co-authored four case studies, and served as managing editor. He presents his work at many conferences and workshops for fish farmers throughout the North Central states where he has the reputation of being "Professor Walleye".

Some of Dr. Summerfelt's earlier work involved pioneering research on lake aeration. Because Iowa's lakes are shallow, nutrient rich and highly biologically productive, and because Iowa's winters are long and cold, Iowa's lakes are subject to dissolved oxygen depletion in winter. This frequently causes die-offs of fish and other aquatic animals. Dr. Summerfelt's research developed cost-effective methods for aerating lakes that have become widely used in Iowa and throughout the world.

Dr. Summerfelt has also made significant research contributions in other areas. These include fisheries management, fish physiology, fish parasitology, fish toxology, fish biology/ecology, and limnology.

Dr. Summerfelt has also made numerous professional service contributions. He has served as Chair of the Iowa State University Department of Animal Ecology and as Associate Director of the U.S. Department of Agriculture North Central Regional Aquaculture Center.

EXCELLENCE IN SCIENCE TEACHING AWARD MULTIPLE/GENERAL CATEGORY

Michael Dean Bechtel

Michael believes that the most important curriculum strategy is energy, and he demonstrates that every day at Saydel High School. With 43-minute class periods and many preparations, one might think that a high enthusiasm and energy level might be hard to maintain. Yet Michael has added new courses, organized new classrooms and storage areas, developed an Ecology club, set up science trips to the Gustavus Adolphus Nobel Conference and the South Dakota State Engineering Expo and incorporated the Physics Olympics into the curriculum. Difficult ideas are made more understandable when students can see the effects of inheritance in an organism. His classroom is filled with animals like guinea pigs, dwarf hamsters, and mice. These animals are used to study genetics concepts with their many traits and fast reproduction. Students are assessed frequently and with many types of tools. His effectiveness in the classroom has significantly increased the number of students who take senior science. Rosemary Roberts, a math teacher at Saydel, says that Michael's room is usually full of students before and after school and that he is willing to help all students. Richard Hutchinson, the principal, adds: "I have seen Mr. Bechtel work with some of our brightest students along with our special needs students at the same time and none of the students felt like they were cheated out of any time.

Michael received the Saydel Golden Apple Award in 1998 and 1999. For three years he has been an Upward Bound instructor in the summer, working with at-risk youth and spurring interest in science. His future plans are to work for a Master's degree, teach a course on the ICN, and produce his own breed of mouse. He looks on himself as a mentor, facilitator, and an assistant. His goal is to make the best possible student, which includes himself.

EXCELLENCE IN SCIENCE TEACHING AWARD EARTH SCIENCE CATEGORY

Laura Kay Crowl

Rita DeJong, an East High associate principal, stated in her recommendation that Kay "makes a profound impact on not only her present classroom students, but all students in the school, district, and surrounding area. She has taught for 27 years and yet students and fellow teachers comment that something new and exciting is happening in every class. Kay creates a classroom atmosphere that keeps students minds and eyes occupied at all times. She does this with posters, displays, and natural artifacts; all of which vary as the topics of study change. Her past students serve as Teacher's Assistants to help other students keep up. Kay feels that her main goal is to develop an interest in the sciences, and she accomplishes this with hands-on inquiry lessons. One unit focused on how core samples are used to interpret earth's geologic history. The students were engaged in activities that introduced the rock families, the laws of geology, and the formation of fossils and fossil fuels. The culminating activity was the core sampling lab in which students were given a multiple-layered cupcake to represent a section of the earth's crust. Everything from limestone, fossil fuels, igneous rocks and aquifers were represented in the multi-colored layers. The students took core samples with clear plastic straws and drew conclusions about the sequence of events.

Kay is a member of the Sioux City Science Committee, is active in professional organizations, has served as a teacher mentor, and was part of the teacher team that received a U.S. West Foundation grant for the integration of meteorology into other science disciplines. Rita DeJong summarized Kay's qualities when she said, "There are many proficient and dedicated leaders in education. There are also leaders who, because of the commitment to education and students, must be considered outstanding. Kay Crowl is outstanding."

EXCELLENCE IN SCIENCE TEACHING AWARD MIDDLE/JUNIOR HIGH CATEGORY

Susan J. Vogel

Susan believes that science is not about answers; it is about asking questions. Her classroom at Jefferson High School is full of colorful wall displays, sample student work, and photos of her students in action. Her classroom is organized by laboratory stations which are stocked with supplies and laminated lab write-ups in 3-ring binders. She encourages student-designed projects and supports interdisciplinary work with other teachers. Her students put their knowledge to use for the benefit of the community through informational pamphlets, posters, and children's books. Her activity-oriented teaching style is evident in one of her most successful units about earthquakes. The students made earthquake safety inspections, learned the history of the New Madrid Fault, used slinky seismic wave simulators, shake tables, oscillation models, and designed earthquake preparedness brochures. They built models of earthquake-proof buildings and tested them with bricks. Her students see science as having value in their lives and feel more responsible to the community through their informational efforts. Students in Susan's class never complain about science being boring. The assessments are as varied as the activities

and include rubrics, performances and teacher-written tests. She believes that alternative assessments are well worth the effort if they meet the needs of all students and provide a truer picture of the capabilities and skills of the children.

Susan was selected as the 1999 recipient of the Outstanding Earth Science Teacher award for the central United States and has been active in the National Middle Level Science Teacher Association. She facilitates events for the middle level teachers at National Science Teachers conventions and is a frequent presenter. She is also the state contact chairperson for the NSTA. Susan taught 8th grade in the Fort Madison schools for many years before moving to the Cedar Rapids area last year where she continues to teach and stay professionally active.

EXCELLENCE IN SCIENCE TEACHING AWARD MIDDLE/ JUNIOR HIGH CATEGORY

Roxanne Baumgartner

David Crisman, the principal of Prairie Middle School, is always impressed with the amount and variety of activity occurring in Roxanne's classroom. She has a keen awareness of multiple intelligences and the need for varied activities. Many times her students drive the direction of study with current events. There is a bulletin board in the room for recent articles and students use the Internet to investigate subjects like olestra, cloning, winter survival, and an outbreak of meningitis at the school. Roxanne understands the unique aspects of adolescents and modifies assignments to accommodate their skill levels. She uses concept maps as pre and post-tests to look for knowledge growth, and incorporates assessments like journals, portfolios, and presentations. Her students must have immensely enjoyed the unit on human heat regulation studying the life of a sherpa, learning about thermodynamics and homeostasis, and understanding heat loss. They were challenged to design an experiment to find the fastest way to cool 300 milliliters of hot water in 5 minutes and prepared travel brochures promoting an adventurous vacation in a cold climate. Students can relate to personal accounts of meeting challenges and Dr. Chuck Huss, an Iowa City mountaineer and physician, visited the class to explain the rigors of high altitude climbing. When he went to Nepal to climb Mt. Everest, the students were there from internet and media accounts and a postcard from base camp.

Roxanne is currently pursuing National Board Certification, supervises student teachers, and is a co-instructor at the Natural Science program, a science camp targeting middle school girls at Iowa Lakeside Laboratory. She has held leadership positions such as department chair and is working with her district to prepare responses to new state mandates. Roxanne enjoys science topics as a hobby through nature activities and traveling. She serves as a model of a lifelong, self-directed learner to the students and staff at Prairie.

EXCELLENCE IN SCIENCE TEACHING AWARD ELEMENTARY CATEGORY

Joanna Oppenheimer Morgan

Joanna is enjoying the support, professional development opportunities, and integrated curriculum at Shimek Elementary School in Iowa City. She emphasizes the daily use of individual science journals to track student's work and understanding. Her students are proud of their journals as they see progress throughout the year. She is part of the PALS program in which parent/student interactions are encouraged prior to a unit through a book bag with literature connections and science activities. When the materials are returned, she looks at the student responses and assesses the misconceptions to better plan lessons that address the needs. One of her particularly successful units is the study of trash and its impact on society. It includes simulated mini-landfills, trash surveys, and culminates with a musical program and displays for parents.

Joanna is an outstanding mentor to student teachers in elementary science and continues to maintain ties to former student teachers who were exposed to the exciting world of teaching elementary science. She organized the Shimek School and neighborhood recycling center and the Gamma Green Team, a group of 5/6th graders who meet to plan environmental activities like maintaining bird feeders, planting butterfly gardens, raising funds for raptors at the McBride Nature Center, and field trips to science exhibits. Her classroom received the 1996 Governor's Iowa Youth Volunteer Award for environmental projects like the recycling center.

Tim Sanderson, Joanna's former principal at Benton Community Schools, said: "The thing that is probably most impressive to me about Jo is her approach to problem solving. She employs the optimistic attitude that all educational problems can be solved and then sets out systematically utilizing all available information and resources to solve the existing problem." Charles Towers, her present principal, says that Joanna "exhibits creativity and innovation to promote student involvement. She is an extremely capable and effective teacher."

EXCELLENCE IN SCIENCE TEACHING AWARD LIFE SCIENCE CATEGORY

Kathy S. Kleen

When you walk into Kathy's classroom at Spirit Lake High School you will see technology in use. Some times you will see traditional tools, but you will also see a Flexcam used daily in Anatomy, lecture notes on Powerpoint presentations, interactive CDs, and teams of students on the Internet. Her classroom is organized so that every student knows what to expect for the coming week, and homework is posted on a website. She offers student-run study sessions before tests and this year began a unique learning project with the district 3rd graders. She arranged for the elementary students to visit the high school where they were instructed by the anatomy students about the brain, heart, cells, internal organs, and the skeleton. It was a huge success. Kathy's Biodiversity Project asks students to apply information about many taxonomic groups in order to prepare a presentation for the Global Life Foundation, an imaginary convention. Each group of students must research 2 groups of organisms, prepare questions, a poster and use technology in their presentation. The assessment involves classifying 20 new species, providing reasoning for placing them in Kingdoms and subgroups. This project has high expectations of the students and they produce, in her words, "the most fabulous projects."

Kathy is an active member of her district's science committee and spearheaded a complete overhaul of the high school science labs, safety equipment, and science curriculum. Due to her efforts, the district committed money for the renovation of 3 labs, implemented new science courses, and purchased new books and materials. Kathy was the first to offer a college dual credit course on her campus, is a member of the Thinking Skills Committee and serves on the AEA 3 Eisenhower committee. She is also busy in community affairs as the chair of the Dickinson County Conservation Board. Her principal, Sheryl Hall, states that "all students have first-class laboratory experiences, thanks to Mrs. Kleen's expertise, determination, leadership, and follow-through."

EXCELLENCE IN SCIENCE TEACHING AWARD ELEMENTARY CATEGORY

Robyn Hagemen Vsetecka

Teachers always appreciate their efforts bearing fruit in the changing attitudes of children. Robyn must be very proud that her efforts have made a difference in her students at Turkey Valley Community Schools. Her love of science is obvious and she loves sharing it with her students, according to Mary Reicks, a parent. Robyn is the kind of person who is constantly trying to make connections and build on her science knowledge. Even trips to the dentist or the doctor are fertile ground for information and pamphlets that she might share later with her students. Her classroom is arranged for frequent cooperative group opportunities with lots of open space to run friction tractors and fly boomerangs. Displays and student photos are evident, but the most striking thing about Robyn's classroom are the questions that the students raise. All are required to "talk science;" to ask "Why is it like that?" or "Why does it work that way?" Each student is responsible for different roles in the classroom from leader to collector to the "happy group member". Robyn takes to heart her role as facilitator and adapts the experiences to fit the students' questioning. She challenges the students to explore together and has been known to frustrate students who are looking for the "right answer." A favorite activity uses creative writing as the students pretend they are shrunk and inside the human body running around in the circulatory and respiratory systems.

Robyn's future plans include working toward a master's degree and teaching workshops to other teachers. She would like to develop a portfolio system for her students so they can better assess their learning. Mary Reicks in her recommendation wrote that, "Our son, Andrew, is very fortunate to have Robyn as his science teacher this year. Andrew's love of science has been revitalized." Robyn is making a difference in the lives of her students.

EXCELLENCE IN SCIENCE TEACHING AWARD PHYSICAL SCIENCE CATEGORY

Jeffrey J. Zaugg

Jeff is known for his energetic, creative teaching style with a passion for learning at Lincoln High School. His master's degree field study introduced him to the barriers of misconceptions that can prevent true learning in physics concepts. Since then he has become a participant in the Comprehensive Conceptual Curriculum for Physics, a learning cycle strategy to help resolve the conflicts between students' misconceptions and physics concepts. Jeff field tested the materials and has since trained others to use the curriculum. He believes that an effective teacher carefully selects the concepts focusing on prior knowledge of the students and he uses a hands-on approach. His open-ended laboratory experiences help students connect past experiences to physics ideas. Assessments include historical/biographical written reports and the two-tier diagnostic test, in which the first part is a multiple-choice question and the second contains a set of possible explanations for the first answer. Jeff says that the advantage of this type of question is that he has a clearer idea of the students' misconceptions. One particularly difficult unit includes the concepts of time, displacement, and velocity. The students are challenged to walk and make measurements of speed and distance with the aid of CBL (calculator-based-lab) units. One student completes a walk and another student must create an exact match to the graph of the first student, no small feat. Creative strategies such as these have resulted in an increase in physics enrollment at his school.

Jeff is also the technology specialist for his school of 150 faculty and oversees the maintenance of hardware. He is also responsible for planning professional development in technology for the staff. Ed Peterson says that Mr. Zaugg is the teacher he turns to when he needs training for other staff members in the physical sciences or the development of curriculum materials. He knows the training will be expertly done.