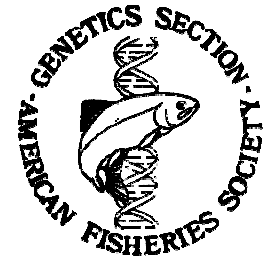


AFS GENETICS SECTION NEWSLETTER



Volume 19, Issue 1
February 2006

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President's Message

Dear Genetics Section Members,

I am preparing the Section's report for the AFS mid-year Governing Board meeting to be held in Bethesda, Maryland from March 9-11. The Board's discussion will cover a wide range of issues as it addresses concerns from Divisions and Sections, but much of it will focus on factors affecting membership and on preparation for the upcoming annual meeting in Lake Placid, New York in September. Please let me know if there are any particular issues you'd like raised at the Governing Board meeting.

The Genetics Section is pleased to sponsor two symposia at the annual meeting—one on hybridization in fish organized by President-Elect Ed Heist, and one on migratory life histories in trout and char organized by Secretary-Treasurer Kitty Griswold. We hope to lure a few additional speakers for each symposium, and we need to submit complete lists of all confirmed speakers and titles to AFS by 24 February. (According to the AFS website, abstracts for contributed presentations were due 10 February.) Guidelines for symposium abstract and presentation format can be found on the AFS website, <http://www.fisheries.org>.

Ed and Kitty have provided brief descriptions of these symposia below. Please let one of us know if you are interested in contributing to either symposium and, if so, provide us with a tentative title for your talk or poster. We welcome your participation!

As always, feel free to contact me anytime about Section or Society matters, and I'll do my best to address your concerns. Comments on the newsletter and website are also appreciated.

Sincerely,
Jeff Hard, AFS Genetics Section President

Hybridization Symposium Announcement

“The Role of Hybridization in Evolution, Ecology, and Conservation of Fishes”

Hybridization has important implications for management, conservation, and evolution of fishes. Hybridization can be harmful when it erodes the genetic distinctiveness between species or reduces the frequency of adaptive phenotypes, sometimes leading to the extinction of species with relatively small population sizes. Human activities, including stock transfer, habitat alteration, and exploitation may increase the incidence of hybridization, although the magnitudes of these effects are hard to quantify. The presence of hybrids also complicates management decisions and legislation. Hybridization can also be a natural component of the evolution of fish communities by fostering the exchange of genes among nascent species that are not fully reproductively isolated and may also result in the evolution of new species. In this symposium we will seek to bring together experts from a variety of disciplines including genetics, morphology, management, and conservation to discuss the impacts of hybridization on natural populations of fishes. Topics for discussion include the detection of hybridization and identification of hybrids using molecular and morphological tools, the impact of hybridization on endangered species and endangered species policies, strategies for preserving the genetic integrity of native fishes through elimination of hybrids and non-native fishes, the role of hybridization in the evolution and speciation of fishes, and case studies of the management practices and roles that natural and manmade hybrid fishes play in aquatic ecosystems.

Ed and Jeff welcome help on this symposium, particularly in organizing, logistics and presentation ideas. If you would like to volunteer, please contact him! - Editor

Symposium Organizers:

Ed Heist
Fisheries and Illinois Aquaculture Center
Southern Illinois University Carbondale
edheist@siu.edu

Jeff Hard
Program Manager, Population Biology
Conservation Biology Division
Northwest Fisheries Science Center
Seattle Washington
Jeff.Hard@noaa.gov

Trout & Char Symposium Announcement

“Risks to Migratory Life Histories of Trout and Char:
a Call for Research, Assessment and Conservation”

Many species of trout and char express life history forms that exploit different habitats over the life cycle of the animal. These habitats range from headwater tributaries to estuaries or oceans. The expression of life history variation in these organisms reflects complex interactions between the environment and genetics. Life history models are increasingly powerful in predicting life history trajectories. At the same time, technological tools are being developed that reveal complex patterns and causes of migration that were not apparent in earlier research. Yet the declines in migratory life history forms may be outpacing our technological advances. In some instances migratory forms are extinct and resident forms persist, leaving society with the impression that populations or species of trout or char are not at risk and may not warrant special protection. Resident populations of trout and char are not continually challenged with the rigors of migration lessening selective pressures for that trait. Thus, if migratory forms of trout and char become extirpated their non-migratory counterparts may have an uncertain legacy in terms of future adaptive traits. Goals of this session are to:

1. present recent research on our understanding of life history complexity in trout and char,
2. document the unique risks to and the loss of migratory life history forms of these species, and
3. present potential conservation and assessment approaches for migratory forms of trout and char.

Symposium Organizer:
Kitty Griswold, Fishery Biologist
Conte Anadromous Fish Research Center
US Geological Survey
Turners Falls Massachusetts
kitty_griswold@usgs.gov

Genetics Section Awards

The Genetics Section of the American Fisheries Society provides two awards each year. The Stevan Phelps Memorial Award is given annually for the best genetics paper published in an AFS journal the preceding year. The James Wright Student Travel Award recognizes excellence in graduate-level work in fisheries genetics and is aimed at assisting graduate students with travel to the national meeting.

Stevan Phelps Memorial Award

The Genetics Section created the Stevan Phelps Memorial Award in 2000 as a perpetual memorial to Steve, a geneticist with Washington Department of Fish and Wildlife who died prematurely from cancer in 1999. The award, which honors Steve's strong commitment to publication of applied genetic research in fisheries, is given annually for the best genetics paper published in an AFS journal the preceding year. The ranking and determination are conducted by a panel of Genetics Section members. This year's panel members—Ken Currrens, Bernie May, and Fred Utter—are currently reviewing papers published in AFS journals in 2005 for the 2006 Phelps award. The top papers to be considered for the award will be identified by May. The award is presented annually at the Genetics Section meeting during the AFS Annual Meeting; announcement of the 2006 award will be made at the Section meeting in Lake Placid (time and date TBA).

Past winners of the Stevan Phelps Memorial Award:

2005

Bessey, C., R.H. Devlin, and N.R. Liley. 2004. Reproductive performance of growth-enhanced transgenic coho salmon. *Transactions of the American Fisheries Society* 133:1205-1220.

2004

Halupka, K.C., M.F. Willson, M.D. Bryant, F.H. Everest, and A.J. Gharrett. 2003. Conservation of population diversity of Pacific salmon in southeast Alaska. *North American Journal of Fisheries Management* 23:1057-1086.

2003

VanDoornik, D.M., M.J. Ford, and D. Teel. 2002. Patterns of temporal genetic variation in coho salmon: estimates of the effective proportion of 2-year-olds in natural and hatchery populations. *Transactions of the American Fisheries Society* 131:1007-1019.

2002

Beacham, T.D., J.R. Candy, K.J. Supernault, T. Ming, B. Deagle, A. Schulze, D. Tuck, K.H. Kaukinen, J.R. Irvinve, K.M. Miller, and R.E. Withler. 2001. Evaluation and application of microsatellite and major histocompatibility complex variation for stock identification of coho salmon in British Columbia. *Transactions of the American Fisheries Society* 130:1116-1149.

2001

Olsen, J.B., P. Bentzen, M.A. Banks, J.B. Shaklee, and S. Young. 2000. Microsatellites reveal population identity of individual pink salmon to allow supportive breeding of a population at risk of extinction. *Transactions of the American Fisheries Society* 129:232-242.

Genetics Section Graduate Award in Memory of James E. Wright

The Genetics Section of the American Fisheries Society is pleased to announce the James E. Wright Graduate Award. This award is presented annually at the Genetics Section meeting at the AFS Annual Meeting and is intended to recognize excellence in graduate-level work in fisheries genetics and to assist graduate students with travel to the national meeting. The amount of the award for travel to the 2006 annual meeting in Lake Placid, New York is anticipated to be \$400.00. All graduate students are encouraged to apply.

Selection will be based on the following criteria:

1. Potential for success in research in fisheries genetics (60%)
2. Anticipated contribution to upcoming annual meeting, e.g. paper, poster, or other contribution (20%)
3. Service to the Society, its Sections, or Chapters (10%)
4. Demonstrated need for travel assistance (10%)

Application Procedure:

1. Applicant must be a full or affiliate member of the Genetics Section at the time of application.
2. Application package should include:
 - a. A brief curriculum vitae including anticipated degree, date of completion, and career goals
 - b. A statement of the thesis or dissertation and abstract of progress to date
 - c. The names and addresses of two references familiar with the applicant's background and abilities.
 - d. A statement of previous service to the Society, its Sections, or Chapters, and need for travel assistance.
 - e. A statement addressing anticipated contribution to the upcoming annual meeting.

Deadline for application is: May 15, 2006

All application materials should be sent via postal or email to:

Jeffrey B. Olsen
Conservation Genetics Laboratory
U.S. Fish and Wildlife Service
1011 East Tudor Road
Anchorage, Alaska 99503
ph (907) 786-3598
jeffrey_olsen@fws.gov

Past Winners of the Wright Graduate Award:

2005

Kristina Ramstad, University of Montana
Aaron Schrey, Southern Illinois University

2004

Amy Welsh, University of California Davis

2003

Jennifer McLean, University of Washington

2002

Devon Keeney, Southern Illinois University

2001

Joel Carlin, University of Florida

1997

Naohisa Kanda, University of Montana
Jeffrey Olsen, University of Washington
Anna Rakitin, University of Guelph

Exotic Species Symposium in February

The Florida Chapter of the American Fisheries Society invites the Genetics Section to attend their 2006 annual meeting from 21-23 February. This year's meeting symposium will focus on Florida's Exotic Aquatic Animals, a topic that is sure to be of interest to those interested in founder events, migration, invasives, conservation and fisheries genetics. The meeting will be held at the Ocala 4-H camp along Sellers Lake in the Ocala National Forest in central Florida.

Registration with all lodging and meals is only \$125, but you must reserve your spot soon. If you are interested in attending, contact Eric Nagid, c/o FWC Gainesville Fisheries Lab, 7922 NW 71st Street, Gainesville FL 32653; Phone 352 392-9617 x. 240; Email eric.nagid@myfwc.com.

Fish in the News:

Administration Pitches New Salmon Policy

By Jeff Barnard, The Associated Press

PORTLAND, Ore. -- Conceding that using hatcheries to supplement dwindling salmon populations is harming wild salmon species in some cases, the Bush administration plans to move away from the practice in favor of a more direct solution: Catch fewer fish.

James Connaughton, chairman of the White House Council on Environmental Quality, announced the new policy Wednesday at a meeting of salmon scientists, many of whom have concluded that wild Pacific salmon will become practically extinct this century without big changes in how the harvest is managed. "Our goal is to minimize and, where possible, eliminate the harvest of naturally spawning fish that provide the foundation for recovery," Connaughton said in an interview with The Associated Press before his speech.

Critics said the change in tactics does not address the combination of factors that have severely reduced salmon runs, from overfishing and development to hydroelectric dams. "Hatcheries were intended to replace habitat behind dams," said Glen Spain of the Pacific Coast Federation of Fishermen's Associations, which represents California commercial fishermen. "If they close all the hatcheries, we want some dams down, too."

Connaughton said the administration has a strong commitment to the hydroelectric dams, which are important to the region's economy.

Scientists have long criticized hatcheries as producers of salmon that dilute the gene pool, spread disease and compete with wild fish for food and habitat, while being less able to survive in the wild. Connaughton did not say how much the administration wants to reduce the wild salmon harvest. He said NOAA Fisheries will review the 180 hatcheries in the Columbia Basin over the next year, shutting down those that harm salmon and helping others that contribute to recovery.

Connaughton said change will require the collaboration of regional federal regulators, Canada, Oregon, Washington and Indian tribes. "We cannot improperly hatch and we cannot carelessly catch the wild salmon back to recovery," Connaughton said. About 2.75 million salmon are caught annually by commercial and sports fishermen in the Columbia and off the Pacific from Alaska, Canada and the West Coast.

Since 1991, 26 populations of salmon have been listed as threatened or endangered. None has been judged healthy enough to be delisted. Restoration efforts and technological fixes to dams have run up a bill of \$6 billion over the past 10 years.

Connaughton, President Bush's top environmental adviser, outlined the new policy at the Salmon 2100 Conference, where scientists gathered to consider new ways to prevent the extinction of wild salmon. Current salmon runs are 5 percent of historical levels, said Robert Lackey, a fisheries scientist for the Environmental Protection Agency and chairman of the conference. Wild runs disappeared from

Europe, most of Asia and the Northeast as populations grew.

Lackey said Connaughton's proposals did not address the four primary drivers of wild salmon declines: a market economy that gives salmon short shrift, rapid population growth, increasing demand for clean water, and human lifestyle choices that ignore the needs of fish.

Spain, of the fishermen's group, said fishing accounts for only 5 percent of human-caused salmon deaths in the Columbia Basin, while hydroelectric dams account for 80 percent.

The National Marine Fisheries Service, which oversees Columbia River and Snake River salmon recovery, recently decided against requiring the Idaho Power Co. to add fish ladders on its Hells Canyon dams.

Environmentalists say adding the ladders as a condition for renewing the company's permits would help the fish survive passage through the three-dam system. The utility, however, complained that the ladders—estimated to cost \$100 million—would be too costly and ineffective.

In Nov. 16 e-mails obtained by The Associated Press, the agency said it is focusing instead on recommending Idaho Power set aside money to clean up the river above the dams so the waterway will one day provide good habitat for salmon and steelhead. Both are protected under the federal Endangered Species Act.

Associated Press Writer John Miller contributed to this report.
(from the Washington Post, Wednesday, January 25, 2006)

Oregon Coast Coho Avoids ESA Listing, Deemed Not Likely to Become Endangered

Following a two-year collaborative process with the state of Oregon, the National Oceanic and Atmospheric Administration's Fisheries Service (NOAA Fisheries Service) announced on January 17th, 2006 that Oregon Coast coho are not likely to become endangered and will not be listed under the Endangered Species Act (ESA). An in-depth assessment by Oregon concluded that state actions to reform harvest and hatcheries had helped turn the coho population around, and that the population's ability to rebound from very low levels demonstrated that it is likely to persist into the future. NOAA Fisheries Service agreed with the Oregon analysis, although noted there are many uncertainties about what the future holds for the coho. Oregon and NOAA Fisheries Service will continue to monitor coho for population changes.

"This administration remains solidly committed to recovering Pacific salmon, and I

am pleased to join the State of Oregon and local stakeholders in celebrating this important milestone," said Bob Lohn, NOAA Fisheries Northwest Regional Administrator. "I applaud the hard work of local agriculture, forestry, state, tribal and other federal partners to develop a solid plan for recovery. This is an encouraging example of the diverse interests that can come together to improve conditions for salmon in the Pacific Northwest."

Under the ESA, an endangered species is one that is in danger of extinction and a threatened species is one that is likely to become endangered in the foreseeable future. NOAA Fisheries Service biologists said that ocean conditions are likely to continue to play a dominant role in the population's health, and that the population is expected to undergo natural fluctuations in the future as a result. Today's announcement follows a significant investment in studying and restoring coho. Between 2000 and 2004, NOAA provided more than \$10 million through the Pacific Coastal Salmon Recovery Fund to the Oregon Watershed Enhancement Board, and nearly \$600,000 to the Oregon coastal Coquille and Siletz tribes for over 150 habitat protection, enhancement, research and monitoring projects to improve conditions for coho and other listed species along the Oregon coast. The NOAA Restoration Center also provided \$950,000 for local restoration projects, including the Lower Columbia and Tillamook Estuaries Partnership, that benefit a variety of aquatic species including coho. Additionally, Oregon received \$250,000 in federal funds to support scientific work on Oregon Coast coho.

(from the NOAA website, Tuesday, January 17, 2006)

Fish Tale - Two Pals Vie for Tiniest Find

Brief global debate over discovery of 2 wee species -- 1/4-inch long and 1/3-inch long

A friendly international debate over the world's smallest fish has turned into a biology lesson on why it pays to be tiny. Two ichthyologists -- one in Seattle and the other in Switzerland -- recently claimed in separate scientific publications to have discovered the smallest vertebrate animal ever known. And small they both are.

One, discovered by Maurice Kottelat, the Swiss biologist, in the acid water of an Indonesian peat swamp, is female and barely more than a third of an inch long, or smaller than the eraser at the end of a pencil.

But the other, found by Kottelat's longtime friend, Theodore W. Pietsch of the University of Washington, measures less than a quarter of an inch, or about the size of a well-worn eraser at the end of a pencil. Unaware of Pietsch's fish, Kottelat reported his finding -- a distant relative to carp and zebra fish -- in the current online issue of Britain's Proceedings of the Royal Society, calling it "the world's smallest vertebrate." Its name is *Paedocypris progenetica*.

Meanwhile, Pietsch, reporting in the current quarterly issue of a journal called *Ichthyological Research*, described a curious little male anglerfish, found in the ocean more than 6,000 feet deep off the Pacific and Atlantic coasts of the United States.

Pietsch didn't actually go fishing for his tiny creatures, but studied samples of them borrowed from the collection at the Scripps Institution of Oceanography in San Diego. It was in that collection that he found the record-breaking small one, *Photocorynus spiniceps*.

The Swiss researcher quickly conceded that his little critter had lost out in the size competition. "I've known Maurice for 25 years, and we're good friends," Pietsch said in an interview. "This is just a friendly rivalry, and we've been laughing together by e-mail since it began." The two men agree that evolution has given major advantages to both fish species because of their miniature size. "Both fishes have evolutionary advantages that have adapted them for the worlds where they live," Pietsch said.

Pietsch's *Photocorynus* is a weird little thing. The male is actually a parasite, little more than a bundle of sperm that fuses for life to the female's much larger body -- in most cases right near the vent from which she ejects her eggs, but occasionally on her back, Pietsch said. "The females can live for 20 or 25 years, whether or not any males find them," he said. "But if the males can't find a female, they die, because it's the female who feeds them. So this is a wonderful way for a tiny male and a big female to get together and stay together, and when the male does fuse to a female, she can be reproducing all the time. "Sometimes, in fact, the female will carry as many as eight small males, all attached to her, and she does all the swimming and eating for all of them."

Kottelat, the Swiss scientist, and his colleagues discovered his fish off the island of Sumatra and found that evolution has enabled that species to thrive in the dark, highly acidic, tea-colored water of rapidly vanishing teak swamps. The females are the tiny ones in these fish, Kottelat said in an e-mail to *The Chronicle*. Their small size helps them survive whenever the swamps dry and only small shallow puddles remain, and of course they're so small that predators can't find them. The slightly larger males have extremely large pelvic girdles and fin muscles, which makes it easy for them to grasp the small females during copulation, or perhaps to move the eggs around after spawning, he said. "*Paedocypris progenetica* is a complete fish which moves on its own, not just pulled by another fish, or pushed by the current," Kottelat said. "It lives in a complex habitat, chooses its microhabitat, predictably chooses its spawning site, maybe its partner, and certainly has a sophisticated courting and spawning behavior. It is a real miniaturized fish."

And as for who was first to find the world's smallest fish, Kottelat said: "We will keep the matter as entertainment for dinners during some ichthyology congress."

(by David Perlman; February 2, 2006 from the San Francisco Chronicle)

Steelhead on Morning Edition

National Public Radio story on steelhead: On January 20, 2006, NPR's Pacific Northwest reporter Martin Kasté aired a story on Morning Edition on rainbow trout and steelhead ("Steelhead Tough to Figure, Tough to Save," www.npr.org).

Your Newsletter Submission Goes Here !

We welcome submissions for section newsletters (Submission Deadline for the next issue is Apr 24). Tell us of your new job, grant or species. Or, perhaps there is a suggestion you would like to make to make the newsletter better? Please send news, concerns, issues, etc. to the Newsletter Editor at carlinjl@whitman.edu.

Calendar of Upcoming Events

February 2006

- Feb 15 — Abstract deadline for VIIth International Congress on the Biology of Fish, to be held 18-22 July at Fairmont Hotel, St. John's Newfoundland Canada. See <http://www.mun.ca/biology/icbf7/index.html>.
 - Feb 15 — Abstract deadline for the 1st European Congress of Conservation Biology to be held 22-26 August, Eger, Hungary. See <http://www.eccb2006.org/>.
 - Feb 15 — Full proposal target date for NSF program in Biological Oceanography. See www.nsf.gov
 - Feb 20-24 — Ocean Sciences 2006, the joint meeting of ASLO, AGU, TOS. Honolulu, Hawaii. See www.agu.org/meetings/os06/.
 - Feb 21-23 — Florida Chapter of AFS annual meeting and symposium on Florida's Exotic Aquatic Animals. See <http://www.sdafs.org/flafs/> or contact eric.nagid@myfwc.com for details.
 - Feb 24 — Deadline for confirming speakers and titles at AFS-GS symposia on Hybridization and Trout & Char. See this newsletter for details!!!
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March 2006

- Mar 1 — Abstract deadline for Ecological Society of America's annual meeting, Memphis Tennessee. See <http://www.esa.org/memphis/>.

- Mar 1 — Early registration deadline for IX International Symposium on Genetics in Aquaculture (ISGA) to be held June 26-30 at Montpellier, France. See http://www.mediaqua.fr/IAGA/web/general_information/index.htm.
- Mar 6-8 — Annual meeting of the Northwest Scientific Association, Grove Hotel, Boise Idaho. See http://www.vetmed.wsu.edu/org_NWS/NWSci_Home.htm.
- Mar 7-9 — 10th West Coast Steelhead Meeting, Fort Worden State Park, Port Townsend, Washington. Sponsored by Pacific States Marine Fisheries Commission.
- Mar 15 — Early registration deadline for VIIIth International Congress on the Biology of Fish, to be held 18-22 July at Fairmont Hotel, St. John's Newfoundland Canada. See <http://www.mun.ca/biology/icbf7/index.html>.
- Mar 15 — Remind your students! Sigma Xi Grants-in-Aid graduate student grant application deadline. Visit the <http://www.sigmaxi.org/programs/giar/index.shtml> for details.
- Mar 31 — Grant application deadline for the Society of Systematic Biologists' Mini-PEET Awards to Enhance Transfer of Taxonomic Knowledge. See <http://systbiol.org/minipeet.html>.
- Mar 31 — Grant application deadline for the Society of Systematic Biologists Awards for Graduate Student Research. See <http://systbiol.org/studentaward.html>.
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April 2006

- Apr 13-15 — 53rd annual meeting of SWAN, the Southwestern Association of Naturalists, Universidad de Colima, Colima, Col. México. See <http://www.ibiologia.unam.mx/barra/congresos/naturalis/sanindex.htm>.
- Apr 15 — AGA / Molecular Ecology travel grant deadline for 2006 AGA Symposium Genetics of Speciation, to be held July 21-24 at University of British Columbia, Vancouver, Canada. See <http://www.theaga.org/agasymposium/index.html>
- Apr 21-23 — The evolutionary biologists of the Pacific Northwest will meet at EVO-WIBO 2006 at Fort Worden State Park in Port Townsend, Washington. See <http://www.zoology.ubc.ca/evo-wibo/index.html>.
- Apr 24 — Submission deadline for the AFS Genetics Section Newsletter
- Apr 30 — Early registration deadline for the 1st European Congress of Conservation Biology to be held 22-26 August, Eger, Hungary. See <http://www.eccb2006.org/>.
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May 2006

- May 9-13 — Aquaculture 2006, Joint meeting of the European Aquaculture Society and the World Aquaculture Society. Florence, Italy. See www.was.org.

May 15 — Application Deadline for the AFS Genetics Section Graduate Travel Award in Memory of James Wright. See this newsletter for details!

May 23-27 — "Get your kicks in 2006" Annual meeting of the Society for the Preservation of Natural History Collections. Sheraton Old Town, Albuquerque, New Mexico. See <http://www.spnhc.org/>.

June 2006

Jun 1 — Abstract deadline for 2006 AGA Symposium Genetics of Speciation, to be held July 21-24 at University of British Columbia, Vancouver, Canada. See <http://www.theaga.org/agasymposium/index.html>

Jun 4-9 — American Society of Limnology and Oceanography Summer Meeting: Global Challenges Facing Oceanography and Limnology, Victoria, British Columbia, Canada. See <http://aslo.org/meetings/victoria2006/>.

Jun 22-24 — Coastwide Genetics Meeting, Santa Cruz, California. Sponsored by the NMFS Southwest Fisheries Science Center.

Jun 23-27 — Evolution 2006, the joint meeting of the American Society of Naturalists, the Society of Systematic Biologists and the Society for the Study of Evolution, at State University of New York at Stony Brook, New York. See <http://life.bio.sunysb.edu/ee/sse2006/>.

Jun 24-28 — 20th annual meeting of the Society for Conservation Biology, Conservation Without Borders, in San Jose, California. See <http://conbio.net/2006/Index.cfm>.

Jun 26-30 — IX International Symposium on Genetics in Aquaculture (ISGA), Montpellier, France. See http://www.mediaqua.fr/IAGA/web/general_information/index.htm.
