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What's so special about drylands?



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Editor's Note: How DO we know what's so special about drylands?

As stated in the last issue of ALN, 2006 was declared the International Year of Deserts and Desertification (IYDD) by the United Nations. The first goal of the IYDD was to celebrate deserts' unique biological and cultural diversity, while raising awareness of the need to protect these unique resources. It is this theme that is addressed in the current issue of ALN. A core principle of all of the articles is that good scientific understanding of drylands is a crucial ingredient for developing strategies to cope with problems such as desertification, and that good scientific understanding in turn relies on having comprehensive, high-quality data and information. Without good data, it's exponentially more difficult to distinguish between natural variations and profound changes in ecosystem behavior--as well as to develop appropriate management strategies for either.

* The full text of this article is available online at: <http://ag.arizona.edu/OALS/ALN/aln59/ednote59.html>.



The future of arid lands revisited: A brief overview -- Katherine Waser

In 1955, the "International Meetings on Drylands" were held in New Mexico, USA, to summarize scientific knowledge about drylands and propose an agenda for addressing gaps in that knowledge. The future of arid lands, comprising papers and recommendations from the meetings, was published the next year. In 2006, as part of the IYDD, UNESCO commissioned a team of scientists at the University of Arizona to review this work and write a new book assessing where we are now relative to then. It turns

out that our understanding has changed in many ways in the past 50 years; we understand complex systems much better, have powerful computers that can handle the massive quantities of data needed to understand such systems; and have accepted that realistic solutions to ecological problems have to include local humans and human livelihood systems. The hope of the authors is that this understanding will ultimately translate into better development policies and land management strategies for drylands.

*The full text of this article is available online at: <<http://ag.arizona.edu/OALS/ALN/aln59/waser.html>>.



Where rivers are dry or ten feet high: Variation and predictability matter more than averages for desert ecosystems -- Mary Price and Nick Waser

A seeming paradox of deserts is that despite their variable climates and lack of water, they often harbor astonishing biodiversity. In ecological terms, the question is "what mechanisms allow all of these species to coexist, when they all rely on the same scarce resource--water?" The answer, propose the authors, lies in two factors: the variability (spatial, temporal and in duration) of rainfall events, and the inability of any one organism to effectively exploit every size of these events. Not only that, the particular mix of strategies organisms use to exploit the available water will vary among deserts that have different patterns of water input. The better our understanding of these individual desert-to-desert variations, and how plants, animals and humans have adapted to them, the more likely it is that we will be able to develop effective strategies for coping with changing desert climates and increasing desertification in the future.

*The full text of this article is available online at: <<http://ag.arizona.edu/OALS/ALN/aln59/price.html>>.



Our changing biological and climate calendar, or, what is phenology and why should we care? -- Mark Losleben and Wim van Leeuwen

To be able to track climate change and its effects, in drylands as elsewhere, we will need to be able to measure these changes when they occur. As the authors point out, a tool already exists for tracking such changes: phenology, or "periodic plant and animal life cycle events that are influenced by environmental changes, especially seasonal climate-driven variations in temperature and precipitation." Humans have always noticed phenological events like the timing of bird migrations or of flowering of fruit trees and other crops. More recently, scientists have recognized that changes in the timing of phenological events can provide direct evidence of climate change, as for example, in the well-documented case of earlier onset of growing seasons in many regions of the globe. But tracking climate change through phenological observations will require massive data gathering efforts both by remote sensing tools and by people on the ground. This task is beginning to be addressed by establishing phenology monitoring networks that leverage already existing abilities to do the work. The authors use the newly established USA National Phenology Network as an example to show how such networks can be set up.

*The full text of this article is available online at: <<http://ag.arizona.edu/OALS/ALN/aln59/losleben.html>>.



Columns: Selected news of interest
Selected resources of interest

The following news items are briefly noted in this issue's columns:

- **Upcoming conferences of interest/Calls for papers**
 - **II International Conference on Water in Arid and Semiarid Lands**,9-12 September 2007, Gravità, Pernambuco, BRAZIL
 - **International Workshop on Environmental Changes and Sustainable Development in Arid and Semi-arid Regions**, 10-17 September 2007, Alashan Left Banner, Inner Mongolia, CHINA
 - **Novel and Sustainable Weed Management in Arid and Semi-Arid Agro-Ecosystems**, 7-12 October 2007, Hebrew University of Jerusalem, Rehovot, ISRAEL
 - **Conference on Small Ruminants Production and Health in Arid and Semi-Arid Regions**, 26-28 January 2008, Sultanate of OMAN
 - **Sustainable Irrigation 2008: Second International Conference on Sustainable Irrigation Management, Technologies and Practice**, 11-13 June 2008, Alicante, SPAIN
 - **Groundwater and Climate in Africa**, 25-28 June 2008, Kampala, UGANDA

Brief reviews of the following books are included in this issue's columns:

- **Growing better cities: Urban agriculture for sustainable development.** By Luc J. A. Mougeot.
- **Research for development in the dry Arab region: The cactus flower.** By Shadi Hamadeh, Mona Haider and Rami Zurayk.
- **The ribbon of green: Change in riparian vegetation in the southwestern United States.** By Robert H. Webb, Stanley A. Leake, and Raymond M. Turner.
- **Unnatural landscapes: Tracking invasive species.** By Ceiridwen Terrill.

☛The full text of the news column is available online at: <<http://ag.arizona.edu/OALS/ALN/aln59/news59.html>>. The full text of the book review column is available online at: <<http://ag.arizona.edu/OALS/ALN/aln59/books59.html>>



CALL FOR PAPERS: *Arid Lands Newsletter* No. 60

The next issue of the *Arid Lands Newsletter* (No. 60) will continue to explore the themes declared for the International Year of Deserts and Desertification (2006) by considering how drylands policy makers, land managers and residents are developing coping strategies to deal with the serious and global threat posed by desertification.

Specifically, articles for this upcoming issue should explore some aspect of the current "state of the art" regarding effective strategies for combating desertification and increasing resilience of local communities, both:

- in the short term (e.g. diversifying livelihood strategies, sharing knowledge and appropriate technologies), and
- in the long-term (e.g. developing policies and institutional mechanisms to promote sustainable land use).

Both broad overviews and more narrowly focused papers detailing specific research or case studies are welcome.

Proposals for papers, comments, suggestions for possible authors, suggestions for resources (web, paper, CD-ROM etc.) to be included, etc. in either of these issues, are welcome. Please send your suggestions to Katherine Waser, Editor, *Arid Lands Newsletter*.

