

# SCGIS e-Newsletter

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**The Society for Conservation GIS**

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## Editor's Message

Hello all,

With winter approaching, and darkness coming earlier for those of us at more northern latitudes, the warmth of the desert last July seems like a distant memory. Recent world events make the memories of the carefree, fun nature of the last SCGIS Conference all the more surreal. Yet, we should remember that SCGIS is a vibrant international organization, that every year, succeeds at bringing strangers together from around the world who, over a short span of time, become close friends. Moreover, SCGIS represents a broad spectrum of people, with different linguistic, ethnic and spiritual backgrounds, who are united in a commitment to work for conservation.

This issue of the e-newsletter exemplifies the spirit of SCGIS. Prashant Hedao recently traveled to Chile, where he attended the first Chilean Conservation GIS conference. Chile, like Russia, has become another "hotbed" of SCGIS activities. Prashant reports how SCGIS International Scholars take what they have learned during their visits to the United States back to their home countries and start amazing things! To illustrate, two of our 2001 international scholars contribute their thoughts. Sasha, from Russia shares his reflections on what SCGIS is all about, and Lucy from Kenya updates us on some of her work on landuse mapping.

This issue also reflect the high degree of enthusiasm expressed at the Borrego Springs conference. Robert "Bobcat" Brothers submitted an unsolicited report on interpretive metadata. As any editor of a small newsletter like this knows, when you often have to beg and plead for submissions, it is refreshing to have a piece land in your inbox from an enthusiastic member like Bobcat.

As well, this issues contains an expanded "TechTips" section and two book reviews. Responses to calls for editors for the "TechTips" column were so enthusiastic that we are going to have a rotating editorship of this column. Kevin Petrik takes the lead this issue with a discussion on how to get help. Jeff Ardron also submitted a piece on portable projects which may be useful to members. The response to the call for book reviewers was overwhelming, thank you! Unfortunately, delays at the publisher and with shipping meant that none of the books I had hoped to have reviewed in this issue could be sent to the reviewers in time. Please bear with me as I try to co-ordinate between publishers and reviewers. If you are interested in doing a book review, please send me a short email describing your areas of interest and expertise. Once again, I apologize to those of you have been waiting to receive your book, and I hope to have this sorted out early in the new year.

Finally, the range of information in the "Society News" and "Member News and Notes" sections reflects the breadth of activities that SCGIS members are involved in. This section is somewhat North American focused this issues, so to our international members, please feel free to send us news from your corner of the globe!

I wish all of you the very best for 2002.

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## President's Message

Greetings,

Hard to believe the SCGIS Annual Conference was almost 5 months ago, the new year is right around the corner, and we've begun planning for the 2002 Conference already. Since the 2001 conference, the Board of Directors has been busy making progress on a number of fronts. Perhaps, most significantly in the past several months has been the strategic planning effort, fundraising, international outreach, and our new web presence.

SCGIS Board Members & Committee Chairs will be gathering at the James Reserve at the end of February 2002, for a formal strategic planning workshop. The purpose of this workshop is to solidify SCGIS's short-term & long-term goals, formalize the draft SCGIS Strategic Plan, and build a unified vision among SCGIS leadership. As I mentioned before, this is an extremely critical time for the Society, and it is in our best interest to dedicate a couple days to thoughtfully and critically plan for the Society's successful future. I'll be sure to keep you all posted on our progress. Of course, if you have any comments, suggestions, or questions about SCGIS strategic planning, please let me know.

The Fundraising, Conference, and International Committees have recently submitted a proposal to the infoDEV Conference Scholarship Fund to support 15 international SCGIS scholars in participating in our annual Conference and training via our partnership with ESRI. The Fundraising Committee is also pursuing other opportunities through donor programs and other grants to assure SCGIS's long-term viability. Look for the SCGIS scholarship opportunities coming out soon.

Over the past several years, and there has been interest and activities in setting up SCGIS chapters in other countries, recently the interest has grown significantly. A couple recent developments include Madagascar, Kenya, Chile, and others. This is very exciting and the Board of Directors is committed to the further development and support of this program.

If you have not seen, please go to our web site and check out the new look ([www.scgis.org](http://www.scgis.org)). The Website Committee has done a fantastic job at updating the contents and giving our site a fresh look. Our Web host, James San Jacinto Mountains Reserve, has been fabulous and has provided some much needed database programming support.

Enjoy the newsletter, Yolanda and the Communications Committee have been hard at work, and it shows.

Cheers,

Eric  
President, SCGIS  
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## Feature Articles

### **Report on the 1<sup>st</sup> Chilean Conservation GIS Conference La Campana National Park, Olmue Chile**

November 8-10, 2001

This was the first ever conference of GIS users in conservation in Chile and the effort was the first step towards building a network of GIS Users. The purpose of the meeting was to exchange ideas, share data, and form partnerships in conservation. The conference was organized by Taller La Era, a Chilean non-profit organization, and was funded by the Fondo de las Americas with support from ESRI Conservation Program (ECP). The conference was the brainchild of SCGIS' brilliant International Scholar Andres Moreira, (1999 & 2001) from Chile, who did a great job in bringing all the conservation GIS folks together at the conference.

About 60 individuals attended the conference and represented conservation NGOs, academia (university professors & school teachers), and Government officials. There was one participant from Colombia and another one from Argentina, including SCGIS international scholars Luis Gomez (1999 & 2001) from WWF-Colombia and Karl Yunis (2000 & 2001) from Dos Margaritas, Chile.



The format of the conference was such that it encouraged more discussion as opposed to individual presentations. The presentations were divided into categories, ranging from the use of GIS in regional planning, biodiversity conservation and academia (see box). There were 3-5 presenters in each category and after all presentations there was enough time for discussion. This was the most interesting part as

it brought up many issues. There was a very good balance between technical & non-technical presentations and local community related conservation presentations.

Every evening after dinner there were a lot of informal and spontaneous discussions on various issues such as data sharing, technical aspects of conservation GIS, local communities in conservation, GIS in conservation education in schools & universities etc. Many of these conversations went on way past midnight.

I made 3 presentations:

- "Frontiers in Conservation GIS" - ArcGIS 8 & future direction of GIS software
- "Case Studies in Conservation GIS", mostly from my work in the past at WWF-US.
- "Society for Conservation GIS - its mission and goals".

#### **Conference Topics:**

##### **Chilean Conservation GIS Conference**

- Lessons from the field - Conservation projects funded by Fondo de las Americas since 1995.
- Capacity and potential of GIS in biodiversity conservation and sustainable development
- Use of GIS in regional planning and action
- Technical and management aspects of GIS projects - solutions instead of problems
- Experiences from the temperate forest ecoregion conservation
- Case studies in conservation using GIS
- GIS for conservation in the academic world
- Role of GIS and mapping in conservation involving local communities

The best part of the experience was the field trip on the last day to the biosphere reserve "Parque Nacional La Campana" famous for its world's largest "Giant Hummingbird", with a wing-span of up to 10 inches, the incredible Chilean Palms (*Jubea chilensis*), and the Quisco Cactus, all very rare and endemic only to this part of Chile. Seeing these incredible forms of nature/life really assures me of my involvement in conservation and the urgency to save them.



Apart from the conference I did spend a day in Santiago where I met with Instituto Geografico Militar (IGM), the federal agency (equivalent of

the USGS & Defense Mapping Agency) that creates all maps in Chile, including the 1:50K maps of the whole country. They showed me around the facility, how they have been traditionally making maps (manually) and the also latest digital maps. I also had a good meeting with the ESRI Chilean distributor INCOM and they promised their support of GIS software grants in Chile to deserving NGOs doing conservation work. Finally, I met with Fondo de las Americas who want to have a partnership with SCGIS to fund conservation folks from Chile to come to the SCGIS conference in US. They also want to fund a GIS training workshop sometime next year in Chile for conservation folks.

I believe that we would make a significant contribution to conservation in any country if we help build a network of conservation GIS users in that country and give them support in any way we can. I've resolved to focus my efforts in that direction in the near future.

I would like to thank Taller La Era for organizing this great conference and Fondo de las Americas and the ESRI Conservation Program for funding and support and ESRI for supporting my attendance at this conference. Finally, a big thank-you to Andres for being such a great host.

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## **Map Message: Interpretive Metadata and other considerations for emphasis and clarification**

GIS has made it possible for maps to become potentially very common tools. But why are maps still used relatively rarely? How can we make them more easily intelligible to most people? For example, many GIS maps are densely -packed reference works. Crammed with lots of information about many different variables, they can be consulted like technical documents for specific factual information, but can seem a blur of details to the non-specialist.

Educational maps contrast with reference maps in several ways that will be described below. I'm looking for help here about how to communicate more effectively with maps, and many of these issues are ones that we have been wrestling with recently. So I mean to raise questions more than answer them, and I look forward to feedback, criticism, and advice. The sample maps discussed here are posted at [www.legacy-tlc/outgoing](http://www.legacy-tlc/outgoing) in the Map Message folder under the file names in [brackets] below.

### **EMPHASIZING THE MESSAGE**

#### **Say the Message in the Title**

An example is the change in title from the dryly descriptive to the inspiring -- from "California Wild Heritage Campaign, Potential Wilderness and Wild Rivers, Citizens' Inventory, Northwestern California" to "Save the Last Unprotected Wilderness and Wild Rivers in Northern California." [NW CA Unprotected Wilderness.jpg]

#### **Put the Legend for Key Variables in the Title**

Prominently displaying the colors that correspond to the message will help viewers immediately grasp what the information is offering. Compare the effect in this example, where a portion of an actual potential wilderness area and a wild river were copied from the map and put directly next to those words in the title. [NW CA Unprotected Wilderness legend.jpg]

#### **Highlight the Area of Concern without isolating it.**

GIS maps are often clipped to watershed boundaries to save processing time as well as to highlight the area of concern. However, this may

be disorienting for viewers not accustomed to seeing part of their familiar landscape displayed as if it were an island floating in a sea of white space. One compromise that retains both context and focus is to show the surrounding landscape in significantly less detail, e.g. only major rivers, roads and towns.

#### **Group Maps together for emphasis on contrast**

See four views of the Klamath-Siskiyou and North Coast regions put together to tell a story. In this case, the difficult-to-comprehend complexity that results from combining four distinct patterns of different colors is the main message. [Recipe for Biodiversity.jpg]

#### **Figure / Ground reversal**

It seems that what is shown appears bigger or more significant than what is not shown. For example, when I presented a map at a meeting that showed only large roadless areas (but no roads), someone in the audience commented that it was important for people to have access to public lands, because it appeared that the landscape was dominated by roadless areas. Then when I presented a map that showed only the roads (but without roadless areas), the access question was answered so strongly that people had a hard time understanding where the roadless areas on the previous map had gone to. [North Coast Roads.jpg and North Coast Roadless Areas.jpg]

The wider the line width and the smaller the scale, the greater will be the illusion of roads dominating the landscape. (see next item below).

### **CLARIFYING THE MESSAGE: Interpretive Metadata**

#### **Roads and Line Width Illusions**

At small scales, even the thinnest line widths make it look like dense road systems have no space left between the roads. To help viewers to understand this, how about an explanation such as this placed in a little box on the map?

*"Spaces between roads appear smaller than they really are, because the size of the line showing the roads must appear much larger than actual size in order to be visible at the scale of this map."*

For the NW CA Potential Wilderness map, with a scale of 1:1,030,000, road lines as narrow as 0.25 points occupy a space on the map 300 feet wide, or ten times the width of a 30 ft. wide forest road. This means that when roads are closer together than 300 feet, it will appear on the map as if there is no space between them.

### **False Negatives**

What's the best way to remind viewers that mapped information is not complete? This will depend on what kind of metadata is available. Information about negative results, unsurveyed or differently surveyed areas is often not included with data sets.

#### **1. Known missing information**

Sometimes information is known to be missing and can be specifically described:

*“There are more roads on the ground than are shown on this map.”*

#### **2. Possibly missing information**

Frequently, metadata about survey methodology is not included, so a variety of possible circumstances can be described:

(a) using specialist terminology:  
*“Absence of presence does not indicate presence of absence.”*  
*“Type II errors may occur.”*

(b) or perhaps more clearly.  
*“Because surveys have not been consistent, we don't know if there are*

*species in places where this map shows none.”*

*“Areas may not show species presence for one or more reasons:*

*~ surveys found nothing*

*~ surveys were not done*

*~ surveys were not done as frequently or in the same way.*

*~ the area is outside the range of the species.”*

If species locations are shown as points, then areas with different survey status or potential for species presence could be shown with different background colors.

### **False Positives from out-of-date info**

In many places, continuing trends of resource extraction and increasing human disturbance can make mapped information significantly out of date. This can be stated directly on the map, sometimes with numbers if there is new data to analyze that isn't mapped yet. For example, analysis could tell us that,

*“Since the vegetation data was gathered, thirty new Timber Harvest Plans covering 10,000 acres have been approved for this area. Thus the amount of mature forest is 5% less than shown.”*

Robert Brothers, Ph.D.  
Project Manager, Legacy - The Landscape Connection, Arcata, California



## International Perspectives

### ***Letter from Russia***

I was one of TECI/SCGIS scholars this year, and about a month ago was happy to receive a request from Yolanda to write a line or two about the impressions that I had from the trip. Happy – because from the very first moment of getting back home I had an urge to write something like that, but was making sure to think twice before starting. I never was very good at writing, so there was a risk for the result to turn out too pathetic, or too inflated, or too plain, and having nothing to do with the impressions that I actually have. The request, however, left no chance for the idea to fade away, especially after the inspiration from learning the news recently about a great achievement of Andres – another scholar that I met during those amazing summer events.

This past summer's events that unexpectedly broadened my mind, changed me in the best way and delivered so wonderful discoveries. People were my main discovery in this episode of my life. People from all over the world, different and similar at the same time. It was so fantastic to realize how creative Nature is, capable of creating so big and beautiful diversity of cultures, languages, smiles, voices, everything, and I'm a part of that! – and it was as well fantastic to realize how close to each other we are, still keeping the diversity. I suppose many people have understanding of that in-born, or obtained it in a very young age, and, of course, theoretically I knew that too all through my life, but it was like watching a waterfall on TV – nice but no miracle. When realization penetrates into every little particle of your consciousness – then the magic becomes real.

The new experience was certainly preceded by many travels and meeting many other people, but for me it was the SCGIS-2001 scholarship program when the breakthrough happened. I never was the same after meeting and talking to every member of the international group, and after breathing in the atmosphere created by the whole group. We were studying GIS together – and GIS knowledge had absolutely special quality. We were living in one room together – and it was like a family, although we met just a day before. We were exploring nature together – and you could feel new understanding of what

conservation is. My eyes were watching in a new way when it was the time for our compact group to join the SCGIS conference and meet 200 more people, which now was another amazing step, and next several days just consolidated the new state of mind. Well, inevitably the time has come one day for us all to part, but it didn't matter for me any more: those whom I met and who altered me in such a beautiful way are always with me. Folks, I remember you and my heart is with you.

Alexander Yumakaev

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### ***Community Based Participatory Landuse Mapping in Kenya***

The ecological zones in which biodiversity is often richest are also the areas in which some of the poorest people live. These people depend on the natural resources around them for production and extractive purposes eg. tilling soils, harvesting forest produce, watering crops and livestock etc.. Thus environmental sustainability issues relevant to the rich are even more relevant to the poor who depend on the availability of the resource base. Kenya, still a less developed country, relies heavily on the utilization of natural resources in its economy, yet approximately 47% of Kenyans live below the poverty line, 36 years after independence. Among other factors, this has been due to poor political and economic governance.

Before and for many years after independence governance was taken as a preserve of the government and not as a collective responsibility of the government, the private sector and the citizenry. This historical role of government cut across all sectors from the national level to the management of natural resources at the local level. However it has been recognized that greater private and public sector participation in all areas especially in the management of our natural resources is paramount if we are to reverse the decline in biological diversity.

Conservationists and development partners increasingly recognize that efforts to conserve biological diversity will not succeed unless local people perceive those efforts as serving their

economic and cultural interests. Conservation strategies must therefore play a dual role of improving the management of natural resources and the quality of life of people. Seventy-five percent of Kenya's wildlife is found outside protected areas where local communities live. Unless the people who are most directly impacted by conservation projects perceive that those projects serve their economic and cultural interests, long-term conservation of biodiversity will not be feasible.

Innovative approaches must be applied to increase the probability of promoting successful conservation of biodiversity. Local communities need to be enabled and empowered to manage their natural resources on a continuous basis in order to ensure the effective and sustainable conservation of otherwise threatened biological resources.

By using tools that enable participatory development and implementation of natural resource management policies we expect to

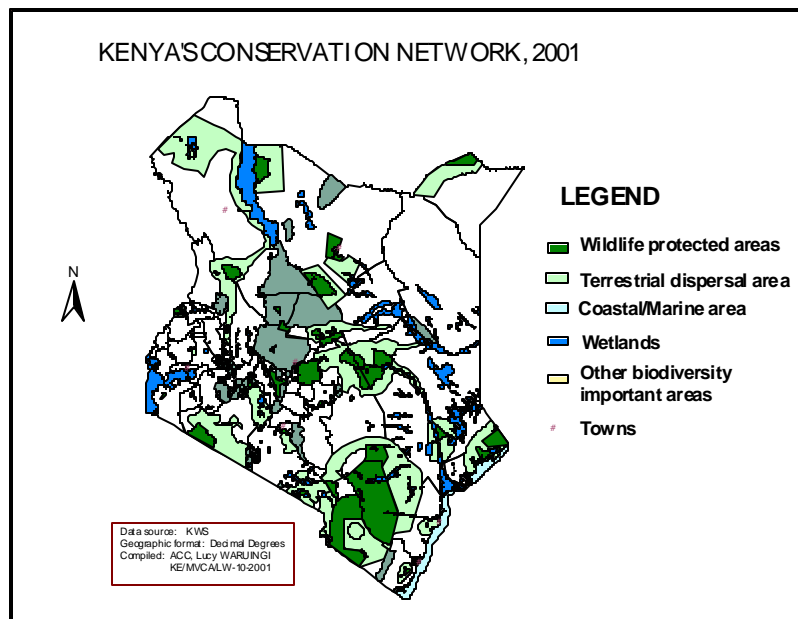
achieve greater success in the conservation efforts which would respect local institutions, cultures and livelihoods.

GIS is one of the tools that is being used to equip communities in the management of their natural resources.

In two group ranches from 2 key conservation areas, we are using GIS to :

- a) Assist the local communities understand and appreciate the natural resources available to them and the need for sustainable resource use
- b) Map the location of these resources
- c) Identify the key threats to these resources and their conservation
- d) Map out their proposed strategy to manage the resources (zoning)

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# Tech Tips

## **Portable Projects**

This is a set of instructions I wrote as a readme file on a portable project I created and put on a CD for a client who had ArcView users of various skill levels. The client wanted the project to be portable from computer to computer, but also to be potentially revised and updated, and then made portable again.

While there are a few ways to go about this, I find the relative path name approach the most straight forward, and universally applicable. This is the one I describe below.

This document notes a few bugs that I have not seen discussed on the LISTSERVS. It also points out that relative path names may not work unless you add two dots before the slash when making relative path names (“../”). A script by Joshua Lieberman called “project.save” does this automatically, or you can do it manually. I describe both approaches below.

### **README**

Project name: SCGIS\_proj

Built using ArcView 3.2\*

This is intended to be a portable project. It may be read from any CD ROM. In addition, it may be transferred to any hard drive, using the following simple rules:

1. Copy the “SCGIS\_proj\_folder” folder on the CD to the desired hard drive or partition. That is, you are copying the folder as well as all its contents.
2. Open the folder and double-click on the “SCGIS\_proj.apr” file. This should initiate ArcView.  
(Note: This will work only if there are no blank spaces in the names of your folders in which the project is nested. ArcView generally gets confused with spaces, and they should not be used in any names.) If clicking on the project doesn’t work, you can of course also open ArcView and navigate to the project.

**If you want the project to remain portable:** When viewing and exiting the project, do not save it, as that this causes the project to lose it’s portability (i.e. relative path names). Once the project is saved, it is no longer portable to another location, though of course you may continue working on it in its present location. Also, you can always go back to the CD for the original portable version. Thus any changes you make to the project and wish to keep will cause the project to lose its portability (see below). Note, that you can edit themes or attribute data and save those changes, without saving the project, and thus keep it portable.

### **If you have changed the project, saved it, and wish it to be portable with those changes:**

- a. If you used extensions or if you have default ones set, the new user will also have to have these. If this might be problematic, unselect all extensions no longer needed and set this as the default. Save project. Otherwise, make sure the new user has those extensions.
- b. If you used shapefiles or tables that are not in the “data” folder:
  - i. If you still want to use them: Remove them from all views. Copy them (using AV File Manager or Explorer) to the data folder. Add them again to your views. Go to step b iii.
  - ii. If you no longer want to use them, remove them from all themes. Go to step b iii

- iii. Save project & close. Open a new project and import the old project into this new one. (This gets around a bug that still looks for the old shapefile paths and other misc. junk.) Save the new project with a new name.
- c. This project, *SCGIS\_proj*, uses only basic fonts and ESRI symbol sets. If specialty ones are added, then it may be necessary to install them on whatever computer the new project is moved to. If you are comfortable running 3<sup>rd</sup> party scripts: Run the “project.save\_disabled” script (by Joshua Lieberman; available at <http://gis.esri.com/arcscripts/details.cfm?CFGRIDKEY=-137862090>). It will make your project portable, as well as saving a copy of the original with a “.abs” file name. It has been around for a few years and was used to create the *SCGIS\_proj* project and so it appears reliable; however, this does not ensure it will work in all situations. If you would like it to run automatically every time you save, rename the script from “project.save\_disabled” to “project.save” (no quotation marks).
- d. If you are not comfortable using 3<sup>rd</sup> party scripts: Open the new project file with a text editor and replace all occurrences of:  
 Path: "c:/SCGIS\_proj/  
 with  
 Path: "../SCGIS\_proj/

This example assumes the project is on drive C. If not, use the appropriate letter instead. Removing the drive letter makes the data path names relative, and thus the project can be once again placed on any drive. Note the two dots before the slash! Note also the single quotation mark.

Save the file with a new name in text format and the “.apr” file extension. This is your portable version.

\* This project should also work with AV3.1, though it has not been tested. If ArcView 3.0 is used, then the project should be “stripped” of AV 3.2 features using an extension on the ESRI ArcScripts page such as “stripper”:

<http://gis.esri.com/arcscripts/details.cfm?CFGRIDKEY=-1285010275>

The following scripts may also be useful:

<http://gis.esri.com/arcscripts/details.cfm?CFGRIDKEY=A2254664-C633-11D5-944B00508B0CB419>

<http://gis.esri.com/arcscripts/details.cfm?CFGRIDKEY=7DE65EE3-B186-11D5-944B00508B0CB419>

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## Q&A with Kevin

“Help, I need somebody. Not just anybody...” I need someone who is an ArcView ace or an GPS guru. Who can you turn to when we have a technical dilemma? Many stumped GIS users know of a few common solutions. We try the help menu of an application in the faint hope of getting a quick answer. When the help menu doesn’t offer any aid, you can check a central help databases, such as the ESRI knowledge base (<http://support.esri.com/>). If you

need specific functionality not available out-of-the-box, you can check if a previous user or the vendor has written a useful script. A list of the sample scripts that come with ArcView can be found at (<http://www.rz.uni-hohenheim.de/anw/gis/arcview/Samples/Samples.htm>). A larger list of user-written scripts can be found at software vendor websites. For example the ArcScripts page (<http://www.esri.com/arcscripts>) has over 1400

publicly available Avenue scripts and 100+ VB scripts that increase symbology, conversion abilities, export options, and more.

When automated systems don't have the answer, we swallow our pride and ask for live help. If you have paid for a service contract with a software or hardware vendor, you can try contacting them. If we are not so lucky, perhaps the quickest answer may be available by asking a coworker or colleague for assistance. Unfortunately, these easy avenues for help can fail us. When this happens we are lucky to be in a technical field where users are willing to help each other online. The archives and free subscription information for 21 different GIS list serves are available at Directions Magazine (<http://lists.directionsmag.com/discussion/>). Each list serve addresses specific issues from individual software platforms (GRASS, ARCINFO, IDRISI, ERDAS, etc) to particular GIS programming languages. This site offers a meta-search engine that enables you to search all 21 of the different GIS list serves at once. If you still can't find the answer in the archives, you can subscribe to a free list serve and post your question directly to other live users.

The other help alternative that are specific to conservation GIS professionals are the CONGIS list serve with archives and subscription information at <http://pete.uri.edu/archives/consgis.html> or the SCGIS list serve hosted at <http://pete.uri.edu/archives/scgis.html>. These two list serves are the best place to turn when your technical question is focused on a conservation-based GIS question. This "Tech Tips" article will highlight some of the recent questions posted to CONSGIS and SCGIS.

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Question 1: "We are trying to export a small bit of a large grid file as an ASCII file, but we keep only getting the whole thing. We can't use "select by theme" or the geoprocessing wizard, because it's not a theme/.shp file. Any ideas? Will using a mask work, or will it still export the ASCII file for the whole grid, but with lots and lots of cells with "no data" in them?"

Answers contributed by Gideon Olaleye, Kai Snyder

Posted answers: You can download the Grid Analyst extension from the ArcScripts website. After installing this extension, choose 'Extract grid theme using Polygon' or 'Extract grid theme

using Graphics' (which could be a graphic box that you draw onscreen).

Alternative answer: You can also cut a subset of the grid without using an extension by creating a new polygon theme and then cutting the large grid based on the polygon boundaries.

1. Choose View|New Theme|Polygon and name it areaofinterest.shp
2. Click the 'Draw Polygon' tool and use mouse to draw the polygon on screen
3. Choose Theme|Stop Editing
4. Activate the grid theme and choose Analysis|Properties|Analysis Extent to newpolygon.shp
5. Choose Analysis|Map Calculator|[Name of Large Grid] and click Evaluate
6. The new subset grid will be added to the View
7. Choose File|Export Data Source and pick ASCII Raster format

Question 2: "Is there any way that one can draw a line of a known compass bearing from a point? (this is for triangulation of radio-telemetry data)."

Answers contributed by: Krysha Dukacz, Jeff Ardron, John Schaeffer, Rebecca Kay, Dave Pastizzo

Using bearing and distance in GIS is a form of COGO or Coordinate Geometry traditionally used surveyors. Many users pointed to several useful extensions for COGO that were posted at the ArcScripts site. This website has over 20 scripts that allow COGO input. Two top suggested scripts are cogo.avx written by Jeff Wilkerson at (<http://gis.esri.com/arcscripts/details.cfm?CFGRI DKEY=-493671228>) and batch point creation by Lyes Morkraoui at (<http://gis.esri.com/arcscripts/details.cfm?CFGRI DKEY=FF99B5BD-7BBF-11D5-944400508B0CB419>).

Question 3: If I have multiple points at the same spatial location (say repeated trap data for an individual of a species), is there a way I can display that fact in ArcView?

Answers contributed by Joe Noble, Travis Saladino, Rich Russell

Several people suggested summarizing the table based on a unique ID for a location. Then join the tables and use a unique value legend based on the count field.

Another solution is to use Spatial Analyst to create a density grid to view behind the point theme. A density grid from a point shape file can be generated by activating the point theme and selecting Analysis|Calculate Density.

A third suggestion was to use a point dispersion extension located in <esri\avgis30\arcview\samples\ext\pntdip.avx>. This is an ESRI built extension to disperse points that sit on top of each other. The dispersion can be performed graphically or permanently in a shape file.

Kevin Petrik  
[kevin\\_petrik@hotmail.com](mailto:kevin_petrik@hotmail.com)



## Book Reviews

### ***From Landscape to Data***

Geographical Data Acquisition. Y. Chen and Y. Lee, eds. Springer-Verlag, Inc.: New York, 2001. ISBN 3-211-83472-9. (300 pp, paper \$74.00).

In maintaining a GIS data acquisition is a perennial area of concern. How will I get data? How do I know if the data I got is any good? Will the data be updated? Why won't you just give me *your* data?

With all these issues surrounding data, it is often overlooked how the data was acquired from the landscape. And it is all too often assumed that if it is digital it must be at a certain level of accuracy and quality. Not true.

Geographical Data Acquisition details the methods for acquiring data from the landscape, giving the GIS user a stronger knowledge of what types of spatial data may or may not suit ones needs. The target audience is for those who want to go beyond the functions of GIS software and "discover the general principles of how raw geographical data are acquired." Geared for those seeking knowledge of different survey methodologies and how they get translated into a GIS, this book is quite technical in its detail.

The book begins by diving into the topic of coordinate systems and how field data is transformed to meet the digital world. Its mathematical figures detail the different options for taking field data and plugging them into different transformation models, thereby manipulating data to meet a specific projection or datum. There is an excellent section on

projections, again detailing how different parameters distort the shape of the Earth once into a GIS.

The heart of the book describes how to derive spatial data from different sources such as analogue maps (digitizing, scanning), ground-based and satellite positioning, techniques for underwater acquisition, and image classification. Emphasis is placed on equipment used for acquiring data, and the general principles for how the data is transformed.

What this book does at its best is give the reader an understanding of what goes into acquiring data from the landscape and the various methods of getting it into a useable spatial format. Though quite technical, it provides the knowledge necessary to critically analyze specific data for accuracy and levels of distortion before it is manipulated in a GIS and analyzed with other spatial data. This book fulfills a knowledge gap for a lot GIS users: how can I evaluate a data set based on its acquisition parameters in order to determine its appropriate use?

Zach Ferdaña  
GIS Analyst  
The Nature Conservancy of Washington

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### ***Spatial Uncertainty in Ecology***

Spatial Uncertainty in Ecology: Implications for remote sensing and GIS applications. C.T. Hunsaker, M.F. Goodchild, M.A. Friedl and T.J. Case, eds. Springer-Verlag Inc.: New York,

2001. ISBN 0-387-98889-0 (402 pp, \$125.00 h.c., \$79.95 p.b.)

This volume discusses the concept of uncertainty, which the editors define as “the state of knowledge about a relationship between the world, and a statement about the world” (p. 8). Put simply, the book is a discussion of the various types of uncertainty which can arise when GIS and remote sensing are applied to ecological problems. These include uncertainty in data generalization, measurement and positional information, and in digitization and data conversion. The editors contend that an understanding of spatial uncertainty is necessary to ensure appropriate decision-making. They suggest that the field of spatial data uncertainty is a rich area of research, but not one which has been widely applied to ecological study.

To illustrate the wealth of research on spatial uncertainty, and its importance to ecology, the book’s introduction is followed with two main sections. The first summarizes how spatial data is used in ecology, and presents case studies in landscape modelling, and predictive species and habitat relationship modelling. The second section outlines several models which address issues of uncertainty in data, display, analysis and decision making. Models discussed include geostatistical models, spatial linear models, digital elevation models and vegetation and remote sensing classification systems.

The first section is more academic in nature and will be most useful to those teaching GIS at the post-secondary level. However, to fully appreciate these chapters, a basic understanding of statistics and hypothesis testing is necessary, and thus this may not be an appropriate text at the introductory level. Certainly several of these chapters should be required reading for any senior undergraduate course. Chapter 2, in particular, provides a good overview of the various types of landscape models used in ecology and the uncertainties inherent in each of them.

Having outlined some of the pitfalls of using spatial data in ecological research, one expects the second section to provide the reader with some “fixes” to the problem of spatial uncertainty. Unfortunately, as the editors point

out, the field of spatial research has not yet reached such a point. Instead, this section presents short chapter-by-chapter summaries of the state of uncertainty in spatial ecology and reviews some of the methods which may be used to cope with it. These are by no means prescriptive, rather they are meant to stimulate the reader to consider levels of uncertainty in his or her own work and possible ways of dealing with them. Several chapters review statistical techniques, such as kriging (chapter 9) and confusion matrices (chapters 12, 14). Others address issues of cognitive perspectives (chapter 7) and fuzzy-set theory (chapter 15, 16). These chapters are quite technical in nature, and require a strong background in the relevant fields. The final two chapters in the section deal with metadata (chapter 17) and the management of uncertainty in decision making (chapter 18).

Overall, this is a useful text for ecological researchers who are incorporating GIS and remote sensing into their toolbox. Because many ecologists are not formally trained in geography, cartography, GIS and remote sensing, they may be unaware of the magnitude of uncertainty inherent in their data. This text provides an important eye-opener, and uses examples that ecologists can readily relate to. Few researchers will find a great deal of benefit in reading the text cover-to-cover, as the technical detail in some of the chapters is overwhelming to anyone not well-versed in the field. Most researchers will find the greatest utility in selecting those chapters in the latter section of the book which are most relevant to their particular area of research to use them as a starting point for further learning about spatial uncertainty. Although not “recipes” for dealing with uncertainty in spatial data, these chapters do contain helpful examples and extensive references. If anything, this book reinforces the importance of considering spatial uncertainty when real-world decisions must be made. If this is the only lesson ecologists take from it, the text will have been worth writing.

Yolanda F. Wiersma  
Ph.D. candidate  
Department of Zoology, University of Guelph,  
Canada



## Society Information

### ***New Board of Directors***

At the members meeting in Borrego Springs last July, members were asked to put forth nominations for the SCGIS Board of Directors. The response was overwhelming. Mark vanBakel volunteered as Chief Electoral Officer, and together with Latha and Darcee set up a highly efficient electronic ballot system and vote count. This new system reflected SCGIS's principles of democracy, as it allowed a rank-based voting system to be used, which minimizes the risk of "wasted votes".

After counts were tallied, the board was elected, who, amongst themselves elected the office-holders. The members of the 2001-2002 SCGIS Board of Directors are:

**President:**

Eric Trembl  
Duke University  
[eat4@duke.edu](mailto:eat4@duke.edu)

**Vice President:**

Joe Breman  
ESRI, Inc., Redlands, USA  
[jbreman@esri.com](mailto:jbreman@esri.com)

**Secretary:**

Michael Beltz  
The Ecology Center, US  
[beltz@WILDROCKIES.ORG](mailto:beltz@WILDROCKIES.ORG)

**Treasurer:**

Karen Willett  
Wildlife Conservation Society, US  
[kbwillett@ucdavis.edu](mailto:kbwillett@ucdavis.edu)

**Members:**

Prashant Hedao  
ESRI, Inc., USA  
[phedao@esri.com](mailto:phedao@esri.com)

Tim Reed  
San Francisco State University, US  
[timreed@SFSU.EDU](mailto:timreed@SFSU.EDU)

Renee Sieber  
McGill University, Canada  
[sieber@felix.geog.mcgill.ca](mailto:sieber@felix.geog.mcgill.ca)

Frank Biasi  
The Nature Conservancy, US  
[fbiasi@TNC.ORG](mailto:fbiasi@TNC.ORG)

Lizz Wandag  
Palawan, Philippines  
[lizzwandag@YAHOO.COM](mailto:lizzwandag@YAHOO.COM)

## Committee Reports

*Ed. Note: The following is a selection of committee reports. For information on the committees not listed here, please check the SCGIS website ([www.scgis.org](http://www.scgis.org)) and click the "Become a Volunteer" link.*

### International Committee

The international committee continues to work to expand the international scholarship program. Goals for the coming year include expanding the suite of outright and in-kind competitive annual scholarships for international awardees to include full or partial airfare, SCGIS and ESRI conference attendance, and basic and advanced conservation GIS training. We are hoping to continue the joint SCGIS and World Bank iCSF scholarships, and are planning to implement a Competitive SCGIS award program in conjunction with the American Association for the Advancement of Science (AAAS) for applicants from developing nations and nations in transition. As well, we hope to assist in the development and organization of national and/or regional SCGIS subgroups throughout the world. Already strong SCGIS subgroups are forming in Russia and South America. In addition we seek to develop a "reverse scholarship" program which will allow SCGIS conservation GIS professionals to respond to international grass root conservation organization requests for extended periods of assistance.

This year, we hope to streamline the scholarship application and review process. Volunteers are needed to help review the scholarship applications. As well, we need help planning travel, training and accommodation budgets.

We are planning to conduct the first week of training for the international scholars in 2002 in Arizona, and then proceed to Redlands for the second week, before heading to the SCGIS/ESRI conferences. Volunteers to help co-ordinate travel plans and logistics for transport would be appreciated!

Roberta Pickert  
Chair, International Committee  
[rpickert@archbold-station.org](mailto:rpickert@archbold-station.org)

### Conference Committee

The conference committee organized another highly successful conference in July 2001 in Borrego Springs, California. The purpose of the SCGIS conference is to stress the theme of conservation of global resources and to strive to provide a relaxed and intimate setting for conference attendees. The conference provides a forum in which to present work (oral & poster format) & participate in workshops & software training. However, as indicated by attendees of the 2001 conference, the most significant role of the conference is to provide an opportunity to network with others and develop a sense of community among conservationists from around the world.

The conference has historically been held the weekend immediately preceding the annual ESRI Users Conference at a location in southern California, USA. The schedule & conference format are evolving and are subject to change depending on input from membership.

In response to member feedback, the conference committee has been investigating alternate venues for future conferences. This has been a very challenging task as many needs and issues (affordability, availability, space, aesthetics & ability to create critical communal space, etc.) need to be balanced. The committee is very pleased to inform the membership that they have found a fabulous venue for the 2003 conference in Northern California, pending approval from the SCGIS Board of Directors. With an understanding that the conference will be moving in 2003, and considering all the issues listed above, chances are high that we will return to Borrego Springs for the 2002 conference. Moving the conference for just one year would require copious amounts of energy and volunteer time that would be better spent advancing other committee activities and preparing for the move to Northern California in 2003.

Running the conference involves a great deal of work and planning. This year, we plan to recruit task coordinators to cover the areas listed below. If you feel you can take on the responsibility for one of these tasks for the upcoming conference, please let the chair know! Many of these tasks can be coordinated from a

distance, so you do not need to be in southern California to help.

The list below reflects a fraction of the myriad of tasks coordinators large and small who are needed to run the conference (presented in no particular order). Please help if you can!

- § Site selection (sub-committee chair needed)
- § Abstract coordinator
- § Conference attendee logistics coordinator (provides information about food and lodging alternatives near venue (hotel, camping restaurants, stores etc...))
- § Program developer
- § Tract development/Abstract Review (sub-committee chair needed)
- § Liaison with International Committee (coordinate presenters & posters)
- § Agenda developer (all scheduling issues, works closely with tract developer)
- § Session moderator coordinator
- § Session technical support coordinator
- § Computer hardware setup/tear down staff coordinator
- § Merchandise coordinator (inventory, sales, database development) (sub-committee chair needed)
- § Membership signup/renewal staff coordinator
- § Registration coordinator
- § Staff coordinator (for registration & merchandise)
- § Hardware donation organizer
- § Carpooling organizer (web development, direction coordinator)
- § Field trip coordinator
- § Hardware transporter (needs to be available before and after conference)
- § Merchandise transporter (needs to be available before and after conference)

Susan Miller  
Conference Committee Chair  
[smiller@esri.com](mailto:smiller@esri.com)

### **Fundraising Committee**

The Fundraising Committee's main goals are to garner sufficient annual revenues, develop a reserve against shortfalls and assure the organization's long-term viability and its continued development by pursuing new revenue sources. We plan to achieve these goals through several avenues.

- Develop and maintain relationships with current funders
- Prepare and submit proposals and applications
- Develop conference sales boutique.
- Establish an online storefront.

We need volunteers to help with the above objectives and to investigate potential donors. If you can help us with generating more funds for SCGIS, the organization as a whole will benefit.

Mark van Bakel  
Chair, Fundraising Committee  
[mvanbakel@esri.com](mailto:mvanbakel@esri.com)

### **Training Committee**

The purpose of the Training Committee is to improve the ability of conservationists to use GIS for conservation. Our goals over the coming year include:

1. Offer opportunities for short term learning to a multi-national contingent of Conservation GIS professionals
2. Establish mechanisms for continued learning and information dissemination to Conservation GIS professionals
3. Increase opportunities for Conservation GIS professionals to advance their careers through training and practical experience.

We would like to accomplish these goals by organizing and hosting an annual two-week training course tailored to conservation applications of GIS. As well, we would like to establish and maintain a technical support component on the SCGIS website. We are also in the process of find out what the Nature Conservancy, World Wildlife Fund, Conservation International and the UofR MA GIS Program has for curricula and/or datasets which we can incorporate into our training base.

We need volunteers to collect information on curricula and datasets and help write curricula and implement on-line tech support.

Paul Burgess  
Outreach and Training Committee Chair  
[p.burgess@conservation.org](mailto:p.burgess@conservation.org)

## Communications Committee

The communications committee has been working to try to streamline SCGIS's message to the wider conservation and GIS communities. We are currently in the midst of preparing a short handout advertising what it is that we do. This will be made available as a downloadable .pdf file which members can print and take to meetings, conference and workshops to help spread the word about SCGIS.

We recently created an SCGIS letterhead which matches the "look" of the new website. Any members wishing to use the letterhead can contact myself, or Eric Treml ([eat4@duke.edu](mailto:eat4@duke.edu)). We are also working closely with the website committee to publish a summary of the SCGIS Annual Conference on-line.

We desperately need volunteers to help with the newsletters!! We would like to move to three issues a year, with one issue as a hard copy "annual report" type publication. We need volunteers with layout skills and those with

access to Adobe Writer/Publisher software, so that we can create .pdf documents.

Yolanda Wiersma  
Chair, Communications Committee  
[ywiersma@uoguelph.ca](mailto:ywiersma@uoguelph.ca)

## Web Site Committee

Have you checked out the new SCGIS website???? ([www.scgis.org](http://www.scgis.org)). After months of hard work, we have a new look for our site, with loads of new information. We will be working to keep the site as up-to-date as possible, as it is an important venue for distributing information about the Society both to members and the wider world. If you have web-skills and can help with site development and maintenance, please volunteer!

Darcee Killpack  
Web Committee Chair, webczar  
[Darcee.Killpack@noaa.gov](mailto:Darcee.Killpack@noaa.gov)



## Member News and Notes

### ***Upcoming Courses and Workshops***

Juniper GIS is offering "Migrating to ArcGIS 8.1" in Bend, Oregon on December 5-6. This course is an excellent introduction to the features of ArcMap, ArcToolbox, and ArcCatalog for existing ArcView and Arc/INFO users. For people new to GIS, we will have a free 2 hour Introduction to GIS seminar the evening of December 4th.

We are also offering a 1 day Spatial Analyst for ArcGIS class on December 7th. This class is beneficial to new and existing users of Spatial Analyst or GRID.

For more details, check our web site: [www.junipergis.com](http://www.junipergis.com) or call Patti Bailey or John Schaeffer at 541-389-6225.

A short course on GIS Design for Regional Conservation planning will be held at the National Conservation Training Centre in Shepherdstown, West Virginia from March 11-15, 2002. Visit <http://www.willallen.com/gisdesign.html> for more information or contact Will Allen at [willtcf@conservationgis.com](mailto:willtcf@conservationgis.com)

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Training Opportunity - Scholarships Available  
What: Training Tools for Non-Formal Educators  
When: January 30 - February 1, 2002  
Where: NCTC, Shepherdstown, West Virginia

This training helps non-formal educators strengthen their ability to connect with classroom teachers. Participants will learn about formal education terminology and practices, pedagogy, learning standards, student assessment, and current environmental education resources. Activities and sessions model ways that participants can present materials so that upon return to the workplace, non-formal educators

can sharpen and enhance teacher development initiatives.

Scholarships covering tuition, lodging, meals, and up to \$500 in travel are available for non-federal employees. Deadline is December 5, 2001. To Apply: Write a short description of your current EE position and how you will use the material from the workshop. Include an estimate of your travel costs and provide complete contact information.

Send to: Bora Simmons, Northern Illinois University, Department of Teaching and Learning, DeKalb, IL 60115 Email: boras@niu.edu Phone: (815) 753-9069  
**YOU MUST APPLY FOR THE COURSE TO BE CONSIDERED FOR A SCHOLARSHIP!!**

## ***Upcoming Conferences***

2002 NCPPIF Annual Meeting  
North Carolina Partners in Flight continues to make great accomplishments. A 2 day workshop for natural resource professionals and citizens interested in volunteer opportunities that benefit bird conservation will be held in the Smokies the weekend of May 24-26, 2002 via a partnership of PIF efforts in North Carolina and Tennessee. Details will be released in early spring of 2002.

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31st North American Association for Environmental Education 2002 Call for Papers August 6-10, 2002 - Park Plaza Hotel, Boston, Massachusetts

The "Boston TEE (Total Environmental Education) Party," will follow four strands:

Strand 1: From Nature to Sustainability

Strand 2: Designing and Planning Spaces for People

Strand 3: Towards the Just City

Strand 4: Leading the way

Proposals are due January 8, 2002. Applications can be downloaded [pdf] from

<http://www.naaee.org/html/conferences.html>

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Conference Announcement: Remote Sensing 2002

The USDA Forest Service is pleased to announce the Ninth Biennial Forest Service Remote Sensing

Applications Conference (RS 2002), April 8-12, 2002 at the Red Lion Hanalei Hotel, San Diego, California.

This conference will address all aspects of remote sensing for land management activities. For

2002, the emphasis is on rapid delivery of remote sensing products, and the increasing availability

of timely assets and products. The conference will primarily consist of a single plenary session with workshops and breakout sessions set for one day. There will be a vendor and poster session

where participants can view some of the latest technology and processing techniques. For more information, visit the RS 2002 website at

<http://www.fs.fed.us/eng/rsac/rs2002>

The conference is co-sponsored by the USDA Forest Service Remote Sensing Applications Center and

San Diego State University's Center for Earth Systems Analysis Research (CESAR). The Forest

Service Pacific Southwest Region will be hosting.

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Environmental Studies Association of Canada/L'Association canadienne des études environnementales

9th Annual Conference

May 28th-30th, 2002

University of Toronto, Ontario, Canada

Special Session: Parks and Protected Areas - Learning from the Past; Looking to the Future

Parks and protected areas embody a wide variety of environmental issues including wildlife protection and habitat preservation, as well as academic disciplines ranging from geography, cultural studies, ecology, economics, history, and wildlife biology. Recent work in the science of protected areas, the policy of protected area management (as evidenced by the Panel on the Ecological Integrity of National Parks) and cultural understandings of 'wilderness' have radically altered the traditional perception of park as islands pristine nature in a sea of civilization.

The Environmental Studies Association of Canada is organizing special session that aims to bring together a wide variety of academics, activists, and managers working within the wide field of parks and protected areas both in Canada and internationally. The aim is to analyze both the successes and the failures of past approaches to protecting nature in wilderness parks, and to discuss future directions for science, management, interpretation and cultural representation within parks and protected areas.

The goal of this special session is to provide a forum for a wide variety of perspectives. We therefore invite organized panels of 3 presenters maximum (preferably with a commentator) and abstracts for individual paper presentations. Abstracts should be 250 words maximum (3 x 250 words for panel submissions, including a brief description of the panel theme). Topics may include, but are not limited to:

- First Nations people and protected areas
- adaptive management
- landscape ecology and reserve network design
- species at risk management
- human and environmental history of parks and protected areas
- socio-economic analysis of parks
- tourism issues
- representing nature in parks and protected areas
- environmental education and heritage interpretation in parks
- cultural resources management
- protected areas policy formation
- ecological monitoring in parks
- marine protected areas
- the politics of wilderness protection
- human communities in and around protected areas
- restoration ecology
- introduced species management
- parks in literature, art, popular culture, and media

Abstracts are due December 15, 2001. Abstracts should include name of contact person and other participants, mailing address, e-mail address, list of required equipment.

Please send electronic copies to John Sandlos ([jsandlos@yorku.ca](mailto:jsandlos@yorku.ca)) and Yolanda Wiersma ([ywiersma@uoguelph.ca](mailto:ywiersma@uoguelph.ca)).

The ESAC/ACÉE Annual Conference is a meeting point for scholars, professionals, and activists from across Canada and beyond who work in areas of environmental concern. It is held as part of the Congress of the Social Sciences and Humanities, the largest academic gathering in North America. To find out more about ESAC/ACÉE, please visit our website. Consultez le site Web de l'ACEE/ESAC pour la version française de l'invitation à présenter des communications: <http://www.yorku.ca/esac/>

Graduate students are welcome to submit papers for the 1st annual ESAC Graduate Student Award for Best Paper. Please indicate any interest in the award in your proposal and be prepared to submit the paper by March 1st, 2002. See the ESAC/ACÉE website for more details: <http://www.yorku.ca/esac/>

## **Other News and Notes**

California Partners in Flight (CalPIF) is looking for a logo unique to California and invites you to participate in a logo contest. CalPIF has been making a difference in the understanding, protection and enhancement of bird populations and their habitats throughout California since 1992. For more information about our work, visit <http://www.prbo.org/CPIF/pif.html>. For more information about the national PIF program, visit <http://www.partnersinflight.org/>.

Deadline: December 15, 2001. You may submit more than 1 design. Prizes include a trip to the Farallon Islands, Sibley's Guide to Bird Life and Behavior and more.

Send artwork on a disc (CD or zip preferable) to Sandy Scoggin, Point Reyes Bird Observatory, 4990 Shoreline Hwy., Stinson Beach, CA 94970. If your image is 300K or smaller, you can e mail it to [scoggin@prbo.org](mailto:scoggin@prbo.org). If you have any questions, please call 415 868-1221, ext. 16.

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The North Carolina Partners in Flight Education and Outreach working group completed the NCPIF PowerPoint Presentation which is now on their web page. Visit the web page to check it out. This presentation may be downloadable in the future. For copies of the presentation, you can send a blank zip disk to Dr. Brooks. Contact him at: [mbrooks@ncwc.edu](mailto:mbrooks@ncwc.edu) for directions.

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DIVA-GIS version 2

A pre-release of version 2 of the free GIS software DIVA -GIS is now available from <http://gis.cip.cgiar.org/gis/tools/diva.htm>

DIVA -GIS is a program for mapping and analyzing species distribution data. It is meant for people who cannot afford commercial software, and for those who want to analyze species distribution data without writing complex scripts... A recent example of a study in which the program was used is: R.J Hijmans and D.M. Spooner, 2001. Geographic distribution of wild potato species. *American Journal of Botany* 88:2101-2112  
<http://www.amjbot.org/cgi/content/short/88/11/2101>

DIVA -GIS includes functions for automatic assigning coordinates to locality data and for checking validity of coordinates. XY can be

imported into shapefiles that are typically analyzed by making grids of, e.g., richness or diversity.

New in version 2 are spatial analysis of molecular data, map projection, extract current and future climate data for all terrestrial locations, basic climate envelope prediction, spatial autocorrelation, and more.

Feedback is appreciated to Robert Hijmans, International Potato Center, Lima, Peru, [r.hijmans@cgiar.org](mailto:r.hijmans@cgiar.org)

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A note to LISTSERV members from a fellow member. Please, if you post a question to the LISTSERV, it is courteous to post a SUM of the responses/answers/solutions that they received!!!! If this organization is about networking and **\*\*sharing\*\*** info, then this is one of the basic and easiest ways to do it. Thanks!



*The Society for Conservation Geographic Information Systems (SCGIS) is a non-profit organization that works to assist conservationists worldwide in using GIS through communication, networking, scholarships, and training. Membership is open to any individual seeking assistance in the achievement of personal or organizational conservation goals.*