



# Alaska Reflections

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## Real Field Work, Virtual Datasheets?

By TONY FISHBACH AND JOEL REYNOLDS

Most biologists agree: the best part of biology is the field work; the worst part is entering datasheets into the computer.

Data entry can be a huge time sink, and creates untold opportunities for errors during transcription. The problems are compounded on projects with long field seasons. In such cases, the delay in data entry can further reduce data integrity because questions about field records may not even arise until months after the fact. And, of course, the delay in data access also makes it impossible for observations to be analysed while the project and field gestalts are still fresh in the observer's mind.

But the times they are a'changin'. This past July the Kodiak National Wildlife Refuge started a four-month long brown bear behavioral study. In the "old" days this project would have been expected to produce more than 2000 datasheets, requiring at least 4 reams of Rite-in-the-Rain paper, several fistsfull of cramped fingers, and 12,000 lines of data entry. Instead, the principal observer, Wildlife Biologist Tony Fischbach, spearheaded a digital data collection process that increases data integrity, makes bio-tech training easier, and allows the rapid initiation of data analysis. In fact, Tony and the Regional Biometrician, Joel Reynolds, were able to design an analysis plan, complete data transfer and error checking, and begin the analysis on Joel's laptop... all while living in a Weather Port on a mountain above the field site (and continuing to collect observations). Who says data analysis can't be fun?

The digital data collection program was born in the spring of 2003, when Kodiak NWR contracted programmer Greg Putnam, of Anchorage based STMS, to devise a database for use on personal digital assistants (PDAs). Greg and Tony developed a



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*Is your field staff this happy? Biologist Tracy Fischbach is smiling because committing her observations directly to a PDA-based database will save her and her co-workers months of data entry chores.*

relational data management system using Pendragon and Access 2000 software. A Palm Zire 71 PDA, with an Otter Heavy Armor waterproof PDA case, was the tool of choice for the trial run.

In the field, observers tap the observations directly into the PDA while straddling the spotting scope tripod. The software presents a series of worksheets with context-specific entry options. Observers simply select the entry category they want to record and enter their data, eliminating the problem of different observers using different codes. The sequence of worksheets ensures that all components are completed during each observation event. Since data entry is almost wholly a process of selecting from menus using a handheld stylus, gloves and mittens are much less problematic than they can be when trying to complete more delicate tasks (such as using a pen or pencil!).

During breaks between observation events the field biologist can synchronize the PDA with a field laptop. When this is done, the database on the laptop conducts a series of automated error checks

on the new observations, flagging any questionable entries or missing data for immediate attention while the collection is still fresh in the observer's memory. The newly updated database is then automatically backed up to a Sandisk Cruzer, a small portable external data storage and transfer device. Automated graphs and tables allow field workers to immediately catch errors and examine trends.

At the recent Refuge Biologist Conference, much discussion focused on the need to increase efficiency and integrity of data management. The PDA-based data management system vastly improves field data integrity, and greatly reduces the delay between collection and delivery of project results to the Refuge Manager and the concerned public. To learn more about PDA-based data management check out the spring 2003

issue of the *Wildlife Society Bulletin* or contact the (justifiably proud) Kodiak National Wildlife Refuge biological staff.

*Tony Fischbach is a Wildlife Biologist at Kodiak National Wildlife Refuge; Joel Reynolds is the Region 7 Refuge Biometrician.*

### Want More Technical Information?

Try these sites

#### Palm PDAs

<http://www.palmone.com/us/products/handhelds/>

#### Pendragon Software

<http://www.pendragonsoftware.com/>

#### Sandisk Cruzer

<http://www.sandisk.com/consumer/cruzer.asp>

#### Waterproof PDA cases

(one of many sources)  
<http://www.thepocket.com/pocketpcaccessories/WATER.html>