

## Field Tech

## A Look at Psion's Workabout Handheld Field Computers

By Steve Wilent, *Source* editor

When Handheld Systems Inc. announced last year that it had entered into a \$5 million blanket purchase agreement with the US Forest Service to supply Psion Workabout Pro 3 handheld field computers, I naturally had to have one to try out. The Workabout, a product of Psion PLC, a London-based company, has been around in various incarnations since 1986; Psion introduced the third generation in 2010. Handheld Systems ([www.handheldsystems.com](http://www.handheldsystems.com)) is a Psion reseller based in Portland, Oregon. Mike Berg, president of Handheld Systems, agreed to loan me a Workabout Pro 3 for a month or so.

My first impression was that this device is a solid, no-frills field computer. Like many other similar instruments, it runs on the Windows Mobile 6.1 Classic operating system and has 256 megabytes of RAM and one gigabyte of flash-memory storage, which is more than adequate for running the Forest Service's FSCruiser and FSVeg inventory software, as well other products, such as Fountains Forestry's Pocket Dog data collection and processing software ([www.fountainamerica.com/twodog/](http://www.fountainamerica.com/twodog/)). The device comes with basic software, including Microsoft Office Mobile (Excel, PowerPoint, Word, and OneNote), Internet Explorer, and calendar and contacts applications.

I downloaded and installed FSCruiser's desktop software on my Windows XP-based office computer and then used Microsoft ActiveSync to install the program on the Workabout. This process took a few minutes and finished without a hitch. Both the Workabout and FSCruiser worked perfectly as I collected some inventory data this winter. The Workabout didn't seem to notice the rain, snow, wind, and below-freezing temperatures, but I did. I must be getting old. The bright 3.7-inch diagonal (2.2-inch by 3-inch) color LED screen provides sharply defined text and images. The documentation says the screen is "sunlight readable," and I have no reason to doubt this, though I didn't have a chance to test it on a sunny day, this being Oregon in winter.

The Workabout is built to survive the rugged conditions foresters encounter in the field. According to the documentation, it withstands multiple drops from

six feet (1.8 m). A standard Workabout has an IP65 Ingress/International Protection rating, making it dust tight and moderately water tight, and this is certainly adequate in most cases. However, Handheld Systems will modify the Workabouts it sells to the Forest Service to have a IP67 rating, which indicates the same protection against dust, but a higher level of protection against water: "Ingress of water in harmful quantity shall not be possible when the enclosure is immersed in water under defined conditions of pressure and time (up to 1 m of submersion)."

Handheld Systems offers two Workabout models: the HDL, with an alphanumeric keyboard, and the HDS, with a numeric-only keyboard; both have standard navigation (arrow) and function buttons. The Forest Service chose the latter. The included high-quality stylus is handy for tapping and typing when one's fingers are too clumsy to do so. The numeric-only keyboard is well designed and the buttons have a good, firm feel, but I prefer alphanumeric keyboards, because I can type faster on them than with a stylus on a touchscreen keyboard. In my book, the flexibility of having both an alphanumeric keyboard and the touchscreen would be an advantage worth paying a bit more for.

I was somewhat surprised that the Workabout did not have a GPS receiver or a wireless (WiFi) communication feature, though it does have a Bluetooth facility for short-range wireless connections with laser rangefinders and other devices. Psion and Handheld Systems offer add-on GPS and WiFi modules, however.

The Forest Service has blanket purchase agreements with several technology vendors, including Juniper Systems, maker of the Allegro rugged field computer. The agency has used Allegros for years — I've seen Forest Inventory and Analysis and other field crews use them. Forestry students at Mt. Hood Community College, where I am a part-time instructor, use Allegro CEs, a model that Juniper has discontinued, to collect data for field projects.

The Workabout and the newest Allegro model, the MX, have comparable capabilities. Both use the Windows Mobile 6.1 Classic operating system and boast the IP67 ruggedness rating. The Allegro has half the RAM (128MB) of the Workabout and



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comes with the same 1GB of storage, but is available with up to 2GB of storage. As with the Workabout, GPS and WiFi are optional. The Allegro is available with either a 4.1-inch monochrome or a 3.8-inch color screen. However, the Allegro's is a Quarter Video Graphics Array (320 by 240 pixels) display, whereas the Workabout's is full VGA (480 by 640 pixels). Either one is fine for data entry, but the Workabout's higher resolution is superior. An alphanumeric keyboard is standard on the Allegro.

The Workabout has a bit of an advantage in weight. At 1.2 pounds, it weighs one-third less than the Allegro, at 1.8 pounds. The Workabout also is more compact, at 7.6 inches tall and 3.8 inches at its widest, by my measurements. The Allegro is 10 inches tall and 5.25 inches across at its widest, which is the display portion of the device's distinctive hour-glass shape.

Field foresters and forestry technicians would likely be happy with either the Workabout or the Allegro, though some would argue for or against various features of each

device. For the Forest Service, the Workabout's lower cost may have been the deciding factor. Handheld Systems's retail price for a Workabout configured like the one I tested is \$1,650. The company did not disclose the price the agency will pay, but I surmise that it will be somewhat less than that. In contrast, the Allegro MX with a color screen typically retails for \$2,875, sometimes more.

If I were buying a rugged field computer and was faced with a choice between two options with such a disparity in price, I'd have to have a compelling reason to shell out an additional \$1,200 or more for one of them. According to Handheld Systems's Berg, under the \$5 million, five-year agreement, the Forest Service may purchase as many as 900 Workabouts each year, though it isn't obligated to buy any of them. By selecting the Workabout, that \$5 million will go quite a bit farther.

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sults would indicate a forest that was harvested of trees with similar diameters and near one another, thus revealing both the stage of forest dynamics and the harvesting strategy.

These methods for measuring the spatial relationships of harvested trees provide a significant resource for the next generation of foresters to know how the forest has changed over time as a result of a harvest strategy. Harvest patterns can be quantified in terms of spatial distribution and DBH relationships. Over time, these data will increase in value to forest stewards. In the near term, foresters' silvicultural assertions can be quantified and verified with a relatively simple GIS process.

### Recommended Resources

- Ebdon, David. *Statistics in Geography*. Blackwell, 1985.
- Getis, Arthur, and J. K. Ord. "The Analysis of Spatial Association by Use of Distance Statistics." *Geographical Analysis* 24, no. 3. 1992.
- Griffith, Daniel. *Spatial Autocorrelation: A Primer*. Resource Publications in Geography, Association of American Geographers. 1987.
- Mitchell, Andy. *The ESRI Guide to GIS Analysis*, Volume 2. ESRI Press, 2005.

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ize. It can be argued by plaintiffs that any programmatic EIS is outdated, based on new studies and other changes, when it comes time for a project to tier to that programmatic EIS," Delany said. "This appears to be a structural problem. SAF believes that the CEQ and federal agencies should examine successful and unsuccessful tiering to determine whether there is a need to further refine the guidance related to programmatic EISs."

### Forest Service Pilot Projects

In February, the CEQ and the US Forest Service announced two pilot projects designed to demonstrate a US Forest Service proposal to develop NEPA best practices for forest restoration projects using lessons learned from two restoration projects currently being analyzed in Arizona and Oregon. The agency will compare and contrast environmental review methods used for the landscape-scale Four Forest Restoration Ini-

tiative in Arizona and the smaller-scale Fivemile Bell project in Oregon.

"These two projects demonstrate that by involving partners early in the NEPA process, we can cut costs and operate more efficiently while still maintaining strong environmental safeguards at the ground level," said Forest Service Chief Tom Tidwell. "We look forward to replicating what we are doing in Arizona and Oregon in other parts of the country where we are engaged in critical restoration work."

For more information about the CEQ and its NEPA guidelines, visit [www.whitehouse.gov/administration/eop/ceq/initiatives/nepa](http://www.whitehouse.gov/administration/eop/ceq/initiatives/nepa).

Kelsey Delaney, assistant director for forest policy, and Committee on Forest Policy members Sharon Friedman, Charles Burley, and Dennis Becker developed SAF's response to the CEQ, which is available online at [www.efor-ester.org/fjp/policy.cfm](http://www.efor-ester.org/fjp/policy.cfm). Scott Horngren, an attorney with the American Forest Resource Council, helped draft the comments.