Different methods of transmitting eLocust data

Currently, there are several possible ways to transmit eLocust data from the field to the National Locust Control Centre (NLCC) in a country. These are described below, indicating the advantages and disadvantages of each as well as installation and operating costs.

HF radio modem

Description. The only HF radio on the market that comes with a HF modem is that manufactured by the Australian company, Codan. The HF modem works with particular models of mobile and fixed HF radios. The Psion (eLocust) palmtop computer is connected with the serial cable to the HF modem and the data transmitted to the NLCC. This could be done at the end of each day.
Field equipment. The field team would need to be equipped with a NGT SR mobile HF radio and HF data modem 3012 in the vehicle, equipped with an antenna. Software must be installed on the Psion.
NLCC equipment. A data modem 3012 attached to a NGT SR fixed HF radio must be connected to a computer (either desktop or laptop). This should be the same computer that has RAMSES. An antenna should be placed on the roof. Software must be installed on the computer.
Advantages. Ability to transmit data from anywhere; easy to use; very little equipment required in the field; no operating costs.
Disadvantages. Requires professional initial of radio, modem and antenna.
Cost. One-time purchases costs of $4800 (fixed HF radio and modem at NLCC), $4800 (mobile HF radio and modem in vehicle), plus antennas. No operating costs.
Further information: http://www.codan.com.au
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Mobile telephone modem

Description. Most of the recent models of mobile (cellular) telephone come with an infrared modem. By placing this in front of the Psion and dialling the number to access the Internet, the field officer can send the field data directly from the Psion by email to the NLCC.
Field equipment. A mobile phone with infrared modem, Psion palmtop computer (configured to use the modem), Internet email account.
NLCC equipment. PC with RAMSES and Internet access.
Advantages. Requires very little equipment, easy to manage, very low operating costs.
Disadvantages. Some remote areas where Desert Locust survey and control operations are carried out may not have mobile telephone coverage.
Cost. One-time purchase cost of about $200-400 for a mobile phone with infrared modem plus operating (calling) costs.

Satellite modem

Description. This is a small portable unit called Inmarsat Regional BGAN satellite IP modem. It is about the size of laptop but weighing much lighter (1.6 kg) and connects to a laptop PC (via USB, Ethernet or Bluetooth). Once it is turned on, the built-in GPS determines your location and calculates the compass direction and antenna angle in order to connect to the Inmarsat satellite. Once connected, full Internet access is available. This allows field data that has been transferred from the Psion to the laptop PC connected to the BGAN modem to be sent via email to the NLCC.
Field equipment. A field team would need a Psion palmtop, a laptop computer and a BGAN modem.
NLCC equipment. PC with RAMSES and Internet access.
Advantages. Ability to transmit data from anywhere.
Disadvantages. Can be difficult to set up and connect to the Internet; requires a lot of equipment in the field; training required; batteries must be charged.

Cost. One-time purchase costs of $1500-2000 (laptop computer) and $1500 (BGAN modem). Operating costs are based either on a fixed time (e.g. 6 months of unlimited usage) or by volume of data transmitted. In case of the latter, it is estimated that the operating costs for 10 field teams would be less than $50 per month.
Further information. http://regionalbgan.inmarsat.com

Internet Café

Description. As the Internet becomes increasingly available outside of major urban areas, shops in villages located within Desert Locust areas offer access to the Internet usually at a fixed hourly rate. These shops are commonly called Internet (or Cyber) Cafes. The field officer could go to the nearest Internet Café and download the field data from the Psion to the PC at the Internet Café, then connect to the Internet from that PC and send the data by email to the NLCC.
Field equipment. Psion-PC connection software (comes with Psion; available for free from FAO DLIS).
NLCC equipment. PC with RAMSES and Internet access.
Advantages. Requires no additional equipment in the field or at the NLCC; very low operating costs.
Disadvantages. A lack of Internet Cafes in some areas where Desert Locust survey and control operations are carried out; the Internet Café must be willing to have Psion-PC connection software installed on their computer.
Cost. Operational cost of about $1-3 per hour of Internet access; it should take less than 5-10 minutes to send field data.

Computers with Internet access

Description. The field officer goes to any office or location that may have a computer that has Internet access; for example, District Agricultural Offices. The Psion is connected to that PC and the field data is downloaded to the PC and sent by email to the NLCC.
Field equipment. Psion-PC connection software (comes with Psion; available for free from FAO DLIS).
NLCC equipment. PC with RAMSES and Internet access.
Advantages. Requires no additional equipment in the field or at the NLCC; very low (if any) operating costs.
Disadvantages. A lack of offices with computers and Internet access in some areas where Desert Locust survey and control operations are carried out; the office must be willing to have Psion-PC connection software installed on their computer.
Cost. Very little operational costs except perhaps to pay for the cost of Internet access.

Satellite telephone

Description. The two main manufacturers of portable handheld satellite phones are Iridium and Thuraya. The field officer would connect the Psion to the satellite phone and send the data to the NLCC. *Note: this has not been tested; a laptop computer may be needed – if so, then the field officer must first download the data from the Psion to the PC and connect the PC to the satellite phone.*
Field equipment. Satellite phone and software; laptop computer (*to be determined*)
NLCC equipment. PC with RAMSES and Internet access.
Advantages. Ability to transmit data from anywhere; easy to use; very little equipment required in the field; low operating costs.
Disadvantages. If a laptop computer is required, then this becomes less convenient and more equipment has to be managed and connected together.
Costs. One-time purchase cost of about $1200 for a satellite phone. Operating costs for either system are about $0.50-1.50/minute, depending on location. It should take about one minute to send field data.
Further information. http://www.iridium.com, http://www.thuraya.com

Prepared by K. Cressman 23/1/2004

Comparison of different methods of transmitting eLocust data

	HF radio	Mobile telephone	Satellite modem	Internet cafe	Internet access	Satellite phone
FIELD EQUIPMENT REQUIRED						
• HF mobile radio	✔					
• HF modem	✔					
• Psion	✔	✔	✔	✔	✔	✔
• Laptop PC			✔			✔ (1)
• Satellite modem			✔			
• Mobile phone		✔				
• Satellite phone						✔
• Software	✔		✔	✔	✔	
ADDITIONAL EQUIPMENT						
• PC				✔	✔	
• Internet email access		✔		✔	✔	✔ (2)
DIFFICULTY TO SETUP	moderate	easy	moderate	easy	easy	easy
DIFFICULTY TO USE	easy	easy	moderate	easy	easy	easy-moderate
TRAINING REQUIREMENT	medium	low	medium	low	low	low-medium
COVERAGE	complete	partial	complete	partial	partial	complete
COSTS / FIELD TEAM (3)						
• Purchase (4)	$11,000	$1,000	$3,500	$500	$500	$2,000 - 3,500
• Monthly operating	0	$15	$5	$5	$5	$10

Notes:

(1) to be determined
(2) includes optional data transmission kit
(3) all costs are approximate estimates for one field team
(4) one-time purchase of required field equipment