

Specification for American Woodcock (*Scolopax minor*) satellite transmitters:

Transmitters **MUST** be (no exceptions – to be compatible to continue the study without interruption or delineation):

PINPOINTW ARGOS (12 quantity) – PinPoint Argos 150 Tag, Wty 6m or 80% 1st schedule

PINPOINT ARGOS (13 quantity) - Pinpoint Argos 75 Tag, Wty 6m or 80% 1st schedule

DLC2 – PinPoint Reader/Prog/Charger

The items listed above, each transmitter MUST:

1. Be reliable, ensuring the cost and effort of deploying transmitters will be productive
2. Collect accurate location data of free-ranging American woodcock including latitude, longitude, date and time
3. Location data must be precise, with <20 m average location accuracy
4. Tag must be able to collect GPS data and transmit GPS location data anywhere within the distribution of the species.
5. Collect locations on a pre-programmed duty cycle, where the duty cycle allows the user to manually program multiple specific and customizable schedules
6. Transmit GPS locations through the ARGOS satellite system
7. Transmit locations through the ARGOS satellite system at regular intervals throughout the data collection phase (e.g. every third GPS location), to ensure maximum data collection
8. Battery must be rechargeable.
9. Battery life should be expected to last a minimum of 6 months
10. Physical specifications
 - a. Units must be constructed for durability and light weight, finished to effectively displace unwanted elements and then hermetically sealed.
 - b. Tags must be available in 3.4-6.3g range
 - c. Antenna length 7.1 in (180 mm)
 - d. Transmitter must be a 'backpack style', compatible with a leg-loop attachment harness
11. General specification
 - a. Operating temperature range: -5 to 35 degrees C
 - b. Splash dive tolerant
12. Tags must have an on-board ARGOS Satellite Orbital Pass Prediction capabilities to maximize energy efficiency by transmitting to ARGOS satellites only when satellites are in view.
13. Include software to decode messages received by ARGOS system. All location and sensor data should be easily exported into Excel and CSV data file formats. Additionally, GPS/Doppler fix locations should be exportable into the KML and Shapefile formats for viewing in Google Earth or ESRI GIS software.