MEMORANDUM OF UNDERSTANDING

-Motus Wildlife Tracking System receiver station hosting agreement-

This Agreement made this XXXX day of MONTH, 202X by and between the BIRD CONSERVANCY OF THE ROCKIES (hereafter “BCR”) and XXXXXX (hereinafter “XXXX”), acknowledging:

Background. The Motus Wildlife Tracking System (hereinafter “Motus”)is an international network of automated radio telemetry stations that offers an effective method to study the movements of small animals tagged with coded radio transmitters. As a tagged bird passes within range of a station’s antennas, a detection is logged and then uploaded to an online database. A single receiving station can detect birds tagged by multiple researchers increasing the potential for new and diverse partnerships. As of 2021, the Motus network is made up of over 1000 stations operated by nearly 900 different organizations, researchers, and private landowners. This collaborative network and its database are managed by Birds Canada and has resulted in over 120 scientific publications that have expanded our understanding of animal movements, habitat requirements, and much more.

BCR is developing and implementing a collaborative network of Motus stations in the Great Plains and Chihuahuan Desert (GPCD) region. By utilizing this technology and collaborating with trinational partners, we can begin to fill in knowledge gaps about migratory grassland species and guide conservation efforts that benefit birds, their habitats, and people.

A Motus receiving station consists of an array of up to 8 antennas, installed at a high vantage point, connected via large low signal loss coaxial cables, to a station computer. Each antenna cable is grounded via a lightning arrestor, and attached to a ground rod to protect the station equipment and the infrastructure on which it is all mounted. The station computer must be powered (120v power connection or 12v solar setup), and will ideally be connected to an internet connection to allow for automated data transfer to Birds Canada servers (the station can use ethernet or WiFi connections [first choice], or could be connected via cellular networks [second choice]). The installation of a Motus station is an involved process, often requiring the use of heavy equipment such as lifts, ladders, and jackhammers. The process often requires several days of work, especially where the building of station infrastructure (towers, etc.) must take place.

License. XXXX hereby grants BCR a license upon and for the use of such portions of XXXX’s property for the installation, use and maintenance of a Motus station as described in Exhibit “A”.

Purpose. The intended purpose of such license is not only to accommodate the placement of a Motus receiving station upon XXXX’s property, but to allow rights for access to land for the installation, maintenance, repair, service, replacement, removal, and use of such equipment as may be necessary to accomplish this work.

Equipment. The configuration of each Motus station will be determined by on-site infrastructure and topography, but in general, the receiver station consists of a mast on a tower or other infrastructure on which there are mounted up to eight directional yagi antennas and associated cables, connected to a station computer. The power source can consist of either (1) a 12-volt DC solar panel (100W) and deep cycle batteries or (2) a 120-volt AC standard grid-based connection. Each station is properly grounded, including the use of lightning protection mounted in-line on each coaxial antenna cable. The station computer is typically connected to the internet through a wired or wireless connection, or through the use of a cellular modem.

Antennas receive signals at 166.380MHz and 434MHz (the two frequencies used by Motus tag manufacturers) and do not transmit anything. Because the station is set up as a receive-only station, there should not be any interference issues with existing radio equipment.

1. Station power. Equipment will be connected on-site to the 120v AC standard grid power. In this case, XXXX will ensure power remains on and connected. Where standard power is not available the station will use a 100w solar panel and a deep cycle battery.
2. If the receiver has wired or wireless internet access, data will stream automatically to the Motus server. In this case, XXXX agrees to maintain internet connectivity. Otherwise, the use of a cellular modem, providing connection to a local cellular network, is possible. In this case, BCR will cover the cost of the data plan for the first year of use, but XXXX agrees to cover the cost of the data plan in subsequent years. As a last option, manual downloads of data can take place, and should occur every three to four months. In this case, XXXX personnel will be required to manually download data and provide it to BCR for upload to Motus servers. (Data download instructions will be provided by BCR as needed).

Coordination. BCR will provide initial planning, coordination and installation of Motus station set-up.

Time Constraints. It is anticipated installation of the Motus receiver station(s) will take place in XXX, although exact dates will be arranged between BCR and XXXX in advance. Stations will remain in place year-round for a minimum period of five years, which period can be terminated by either party provided a 30 day written notice is given. At any point, this Agreement can be re-evaluated by both parties and stations taken down or moved to a different location.

Cost of Installation or Removal of Motus Station. BCR will assume the cost of the acquisition and installation of the Motus station and related equipment. If the station must be dismantled or moved, absent agreement otherwise, the party requesting the movement or removal of the station shall assume the associated cost.

Ownership. BCR will retain ownership of the Motus station and associated equipment, unless a contract for equipment purchase or donation has been agreed upon and executed by both parties.

Maintenance, Repair and Replacement. Basic visual inspection (checking to see that it’s still powered, nothing has fallen apart, etc.) of the Motus station for the duration of the agreement will be the responsibility of XXXX. In the event of equipment failure or damage, BCR will be responsible for equipment replacement, but may rely on XXXX personnel to perform maintenance (if possible). Maintenance beyond the capabilities of on-site XXXX personnel may require a BCR technician to visit the site to perform the maintenance and any repairs to the station.

Liability. XXXX, as the party with oversight of the property, shall be primarily responsible for condition and safety of those upon the property. However, BCR personnel will ensure that all safety measures and requirements are followed throughout their presence on the property of XXXX.

Insurance. Each party shall carry insurance in sufficient amount to protect its interests for personal injury and property damage liability relating to the Equipment, its installation and use.

IN WITNESS WHEREOF, the Parties hereto have agreed to and thereby execute this Memorandum of Understanding as of the date first-written above.

BIRD CONSERVANCY OF THE ROCKIES

Signature\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_

Printed Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

XXXXXX

Signature\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_

Printed Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

LAST REVISED October 11, 2021