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HNF-60814
Revision 0

# Hanford Site Long-billed Curlew Monitoring Report for Calendar Year 2016

Prepared for the U.S. Department of Energy
Assistant Secretary for Environmental Management

Contractor for the U.S. Department of Energy
under Contract DE-AC06-09RL14728

**P.O. Box 650**
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The cover photo is of a Long-billed Curlew, taken by Kevin Cranna

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Mission Support Alliance

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***By Julia Raymer at 8:56 am, Apr 27, 2017***

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# 1.0 Introduction

The U.S. Department of Energy, Richland Operations Office (DOE-RL) conducts ecological monitoring on the Hanford Site to collect and track data needed to ensure compliance with an array of environmental laws, regulations, and policies governing DOE activities. Ecological monitoring data provide baseline information about the plants, animals, and habitats under DOE-RL stewardship at Hanford required for decision-making under the National Environmental Policy Act (NEPA) and *Comprehensive Environmental Response, Compensation, and Liability Act* (CERCLA). The *Hanford Site Comprehensive Land Use Plan* (CLUP, USDOE 1999), which is the Environmental Impact Statement that evaluates the potential environmental impacts associated with implementing a comprehensive land-use plan for the Hanford Site for at least the next 50 years, ensures that DOE-RL, its contractors, and other entities conduct activities on the Hanford Site in compliance with NEPA.

The vision for the DOE-RL managed portion of the Hanford Site focuses not only on the clean-up of nuclear facilities and waste sites, but on the protection of groundwater and the Columbia River and the restoration of Hanford lands for access and use. To reach these goals Hanford is working closely with partners, such as the U. S. Fish and Wildlife Service (USFWS) and National Park Service (NPS), to enable use of the Hanford land consistent with the CLUP. As the Hanford Site moves toward accomplishing this vision, understanding of the ecological resources present and whether there is a need for conservation and/or protection of any resources will be critical for making informed decisions for responsible site stewardship.

The *Hanford Site Biological Resources Management Plan* (BRMP, USDOE 2013) is identified by the CLUP as the primary implementation document for managing and protecting natural resources on the Hanford Site.

> The BRMP provides a mechanism for ensuring compliance with laws protecting biological resources; provides a framework for ensuring that appropriate biological resource goals, objectives, and tools are in place to make DOE an effective steward of the Hanford biological resources; and implements an ecosystem management approach for biological resources on the Site. The BRMP provides a comprehensive direction that specifies DOE biological resource policies, goals, and objectives.

DOE-RL places priority on monitoring those plant and animal species or habitats with specific regulatory protections or requirements; or that are rare and/or declining (federally or state listed endangered, threatened, or sensitive species); or are of significant interest to federal, state, or tribal governments or the public. The BRMP ranks wildlife species and habitats (Levels 0–5) based on the level of concern for each resource. A Washington State monitored species, the Long-billed Curlew (*Numenius americanus*) is ranked as a Level 2 resource in the BRMP. The management goal of Level 2 resources is conservation, with a low level of status monitoring.

Long-billed Curlew surveys fulfill the obligations described in the Memorandum of Understanding between DOE and USFWS *Regarding the Implementation of Executive Order 13186,* "*Responsibilities of Federal Agencies to Protect Migratory Birds*" (USDOE and USFWS 2013) by conducting research and other activities for the preservation and enhancement of habitat for migratory birds, maintenance of bird populations, and minimization of human impacts on native species.

## 1.1 Background

The Long-billed Curlew is the largest North American shorebird and is closely related to the snipe, sandpipers, and yellowlegs. As its name suggests, the Long-billed Curlew has an extremely long and down-turned bill. Long-billed Curlews breed in short-grass and mixed-grass habitats of the Great Plains, Great Basin, and intermontane valleys of western United States and southwestern Canada. In winter, they migrate to portions of the Pacific, Gulf, and Atlantic Coasts and interior regions of southwestern United States and Mexico where they can be found in wetlands, mudflats, and tidal estuaries. On the Pacific Coast, they mainly occur along California and Mexico (including both coasts of Baja California) but occasionally north to southern British Columbia and south to Costa Rica. On the Gulf Coast, they occur primarily along Mexico, Texas, and Louisiana but sometimes south to Belize and east to Alabama. Small numbers winter on the Gulf Coast of Florida and on the Atlantic Coast, from Florida north to South Carolina and seldom North Carolina (Dugger and Dugger 2002).

Long-billed Curlews feed on terrestrial insects, marine crustaceans, benthic invertebrates and occasionally small vertebrates (Dugger and Dugger 2002). During the breeding season, the female chooses one of several scrapes created by the male. The pair deepen the scrape and line the nest cup with material available in the immediate vicinity. On the Hanford Site, these materials include cheatgrass (*Bromus tectorum*) leaves and culms, rabbit pellets, small stems and twigs, seeds, Canada goose (*Branta canadensis*) excreta, miscellaneous litter, and an occasional small stone (Allen 1980). Long-billed Curlews often place their nests near conspicuous objects. On the Hanford Site, Allen (1980) found nests near old big sagebrush (*Artemisia tridentata*) limbs, rocks, bare dirt mounds, dead furrows, steel cable, a horse manure pile, a rusty 5-gallon can, an old tumbleweed (*Salsola tragus*), and a large bunchgrass.

Long-billed Curlews arrive on the Hanford Site in mid- to late-March and begin courtship and nesting. Eggs are typically laid in the beginning of April and chicks begin to appear mid-May (Allen 1980). Allen (1980) found chicks normally fledge in June and most of the curlews depart the Hanford Site by mid-July for their migration south. She described breeding areas on the Hanford Site as typically flat and characterized by two types of vegetation cover; cheatgrass with Sandberg's bluegrass (*Poa secunda*) and cheatgrass without Sandberg's bluegrass. Allen (1980), whose fieldwork was conducted in 1976 and 1977, states that the Hanford Site including the portions now managed by USFWS supported a Long-billed Curlew population of approximately 300 birds during the breeding season. She found approximately 100 birds on the Hanford Site west of the Columbia River with roughly 60 paired, 20 unpaired but territorial males, and 20 unattached individuals.

### 1.2 Objectives

The focus of this monitoring effort was to determine if the historic areas designated as Long-billed Curlew nesting areas on the Hanford Site (Allen 1980) are still in use and to investigate other areas more recently identified by monitoring staff as potential nesting areas (Figure 1). Although the work by Allen (1980) was comprehensive, little recent data on Long-billed Curlews have been collected on the DOE-RL managed lands of the Hanford Site since the late 1970s. This survey will provide land managers with specific nesting areas so that these areas can be avoided and disturbances minimized during the nesting season. Information collected during this survey will initiate the development of a more current understanding of nesting Long-billed Curlews on the DOE-RL managed lands of the Hanford Site.

### 1.3 Scope

The scope of this work is to perform a preliminary survey to obtain the general distribution of Long-billed Curlew nesting areas on the DOE-RL managed lands of the Hanford Site. Although numbers of Long-billed Curlews were recorded during the survey, no attempt was made to determine sex of the birds or state of pairing. Also, no effort was made to locate actual nests. Methods for locating nests, such as rope drags, are time-consuming and were beyond the scope of this project.

## 2.0 Methods

Survey methods were loosely based on techniques used by Allen (1980). A total of 100 roadside point counts along four routes and nine standalone point counts were established (Figure 2). Designated routes and standalone point counts were placed in previously known (Allen 1980) and potentially suitable Long-billed Curlew nesting areas. Dechant et. al. (1999) suggest that curlew habitat areas need to be ≥3 times as large as a curlew territory, which averages about 14 hectares (34.6 acres). This is based on curlews requiring an unoccupied buffer strip 300-500 meters wide around the edge of suitable habitat (Redmond et al. 1981). Areas of Sandberg's bluegrass and cheatgrass greater than 50 hectares (123.6 acres) in size were considered potentially suitable Long-billed Curlew nesting areas. Roadside point counts were spaced every 800 meters (~0.5 miles) along the four routes. Standalone point counts were placed in areas not covered by the four survey routes. Surveyors navigated to each survey point using a Trimble handheld Global Positioning System (GPS), walked 10 to 50 meters (32.8 to 164 feet) off the road, and began the survey. The survey at each point began with a 3-minute passive observation interval followed by a 2 ½-minute call-broadcast interval then followed with a 4-minute passive observation interval. During each interval of the survey, the observer listened and scanned (with and without the aid of binoculars) the surrounding area for Long-billed Curlews. The call-broadcast section of the survey was conducted with a cellular phone speaker and included:

- 30 seconds of Long-billed Curlew vocalization (Andrew Spencer, XC189311. Accessible at www.xeno-canto.org/189311)
- 30 seconds silence

- 30 seconds of Long-billed Curlew vocalization (Andrew Spencer, XC189316. Accessible at www.xeno-canto.org/189316)
- 30 seconds silence
- 30 seconds of Long-billed Curlew vocalization (Paul Marvin, XC278346. Accessible at www.xeno-canto.org/278346).

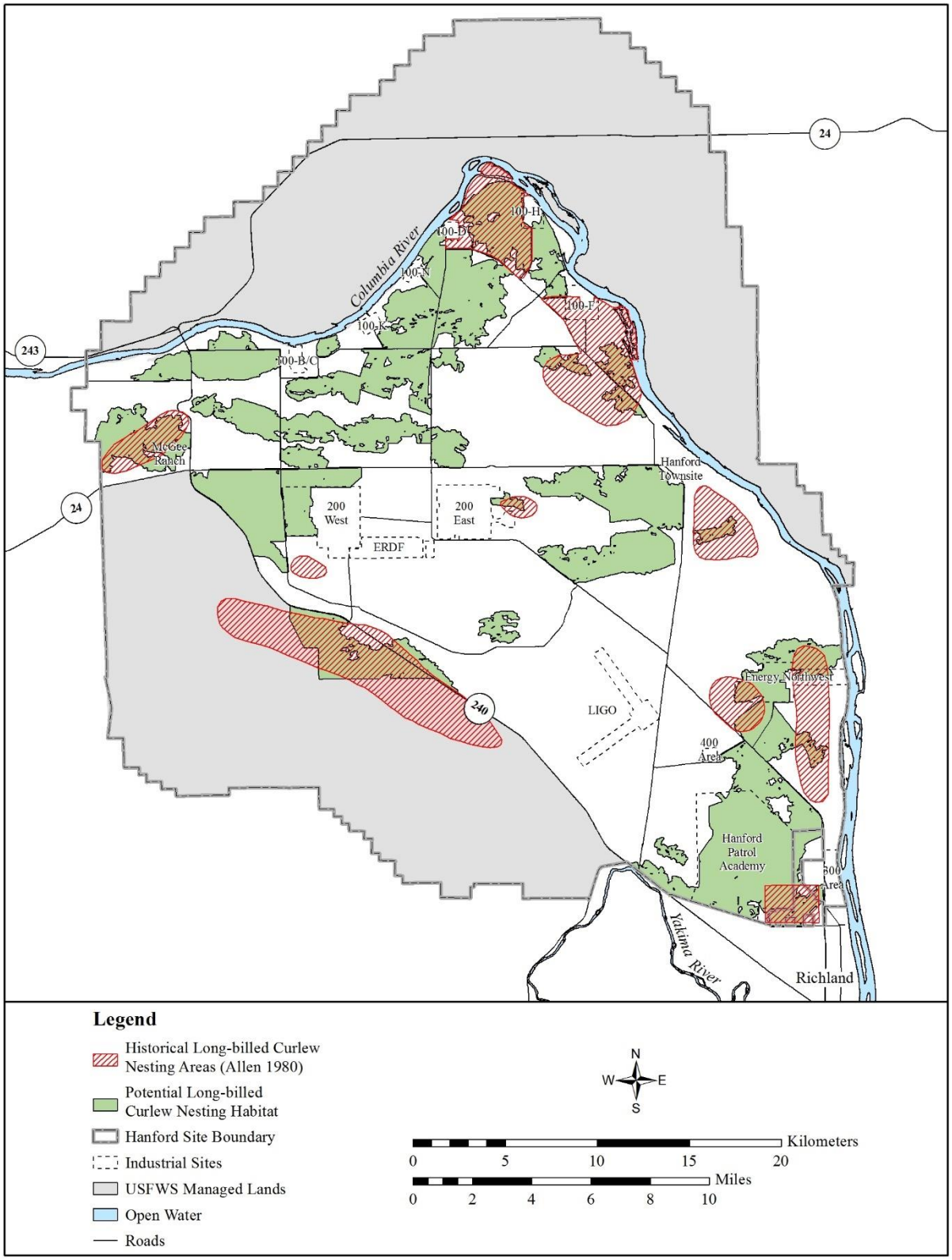


**Figure 1. Historical and potential Long-billed Curlew nesting areas on DOE managed lands of the Hanford Site.**

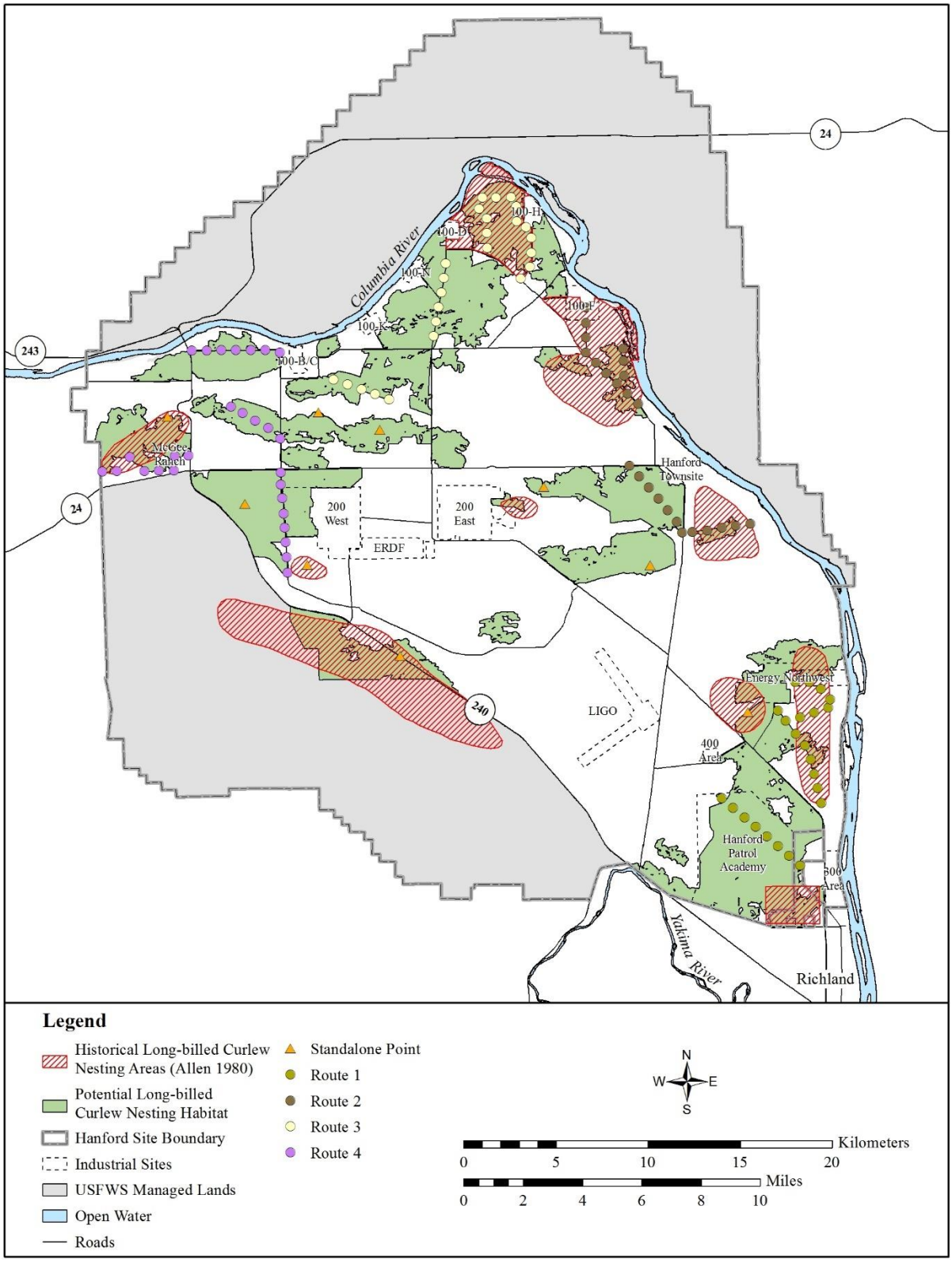


**Figure 2. Point count survey locations planned for DOE managed lands of the Hanford Site in 2016.**

The number of Long-billed Curlews that were audibly or visually detected during the survey were recorded. All surveys were conducted early in the day (between 0600 and 1200). Surveys were performed on days with no more than light winds and no precipitation to facilitate better response from curlews and for easier detectability.

# 3.0 Results

Long-billed Curlew surveys were conducted on 5 days from May 17 through May 26, 2016 (specifically, May 17, May 18, and May 24-26). We detected a total of 36 Long-billed Curlews including 35 at point counts and one between point counts (Figure 3). Long-billed Curlews were counted at 15.2% (15 of the 99) of the point counts surveyed. We were unable to survey 10 point counts along Route 1 due to access restrictions. Eight of the 10 point counts not surveyed were in the Hanford Patrol Academy firing range, which was in use during our survey window. The other two point counts not surveyed were situated in an active Bald Eagle (*Haliaeetus leucocephalus*) nest buffer protection zone near Energy Northwest.

Long-billed Curlews were detected mainly in four areas: near Energy Northwest, 100-F Area, 100-H/100-D Area, and McGee Ranch (Figure 3). In addition, small numbers of curlews were observed at scattered locations throughout the Hanford Site, including one at the Highway 240 Area, two northeast of 200 East, one southeast of 200 East, and one located along Army Loop Road. One curlew was incidentally observed during an unrelated ecological review within the firing range of the Hanford Patrol Academy on June 7, 2016.

# 4.0 Discussion

This report describes a Long-billed Curlew survey in which curlews were observed in many of the same areas that were documented as curlew habitat by Allen (1980) in the late 1970s. Similar to Allen's study, curlews were identified at Energy Northwest, the 100-F Area, the 100-H/100-D Areas and the McGee Ranch Areas. We also found smaller numbers along Highway 240, east of 200 East, and along Army Loop Road. Allen (1980) selected three high density curlew areas for her behavioral study of curlews, and although these sites were selected because of their high numbers of curlews, Allen's site selection was somewhat arbitrary. It is important to note that her 300 Area site (this site is west of Route 4 South and is not technically part of the 300 Area) – the highest density curlew area previously described on the Hanford Site (Allen 1980) was not surveyed in this study because it is currently being transferred out of DOE's ownership. In addition to Allen's surveys, recent annual breeding bird surveys (Wilde et al. 2013, Wilde and Filan 2014, Wilde 2015, Wilde 2017a, Wilde 2017b) on the site also verify that the high density areas identified in this survey were similar (Figure 4).

This survey was limited in scope and only included Allen's historical nesting areas, and areas of Sandberg's bluegrass and cheatgrass greater than 50 hectares (123.6 acres) in size. Future surveys should be designed to systematically determine nesting densities throughout the site in order to accurately measure the

extent of curlew density on the Hanford site and allow tracking over time. These surveys should include determining the sex and pairing of individuals.

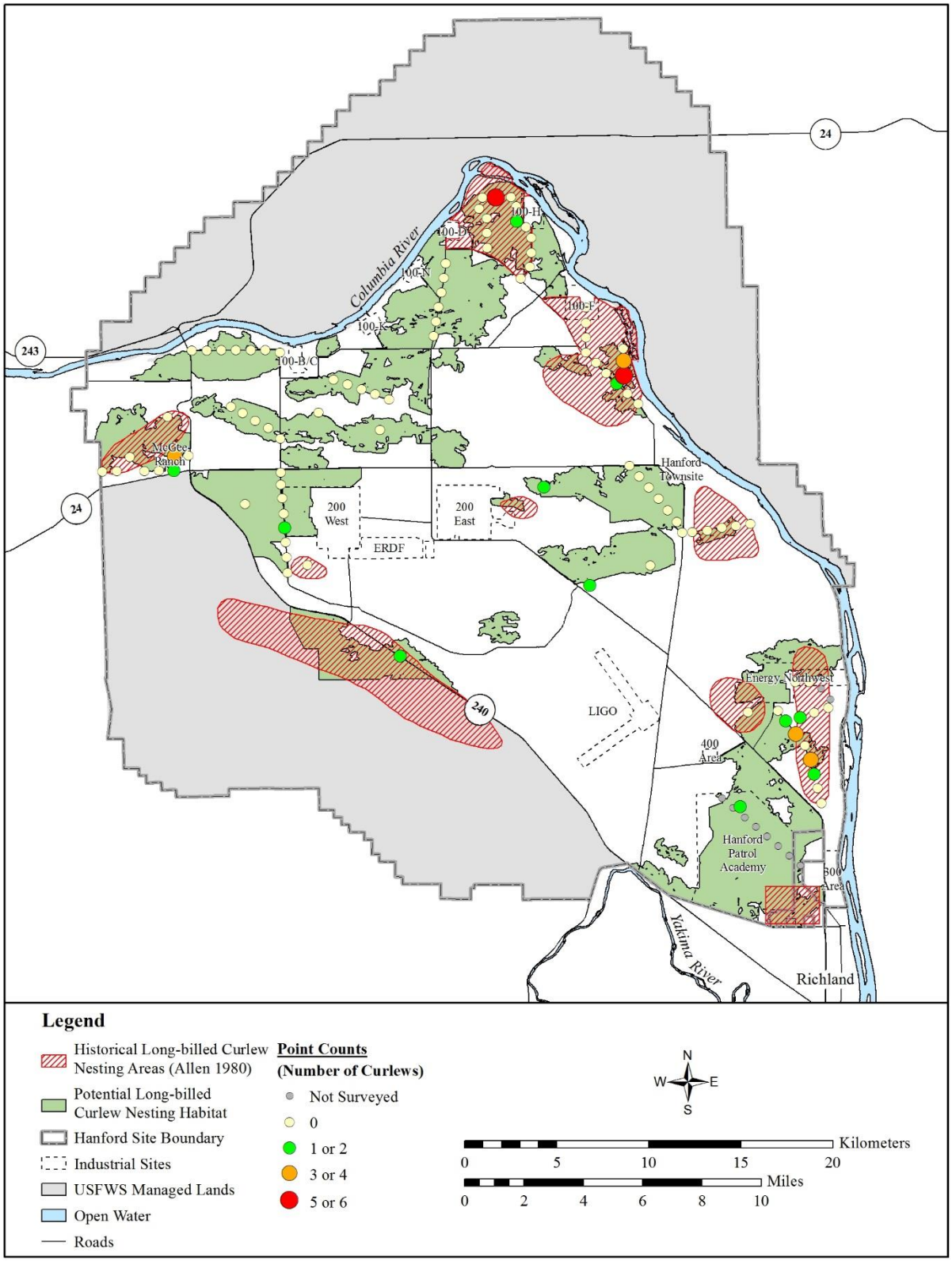


**Figure 3. Long-billed Curlew point count surveys conducted on DOE managed lands of the Hanford Site in 2016.**

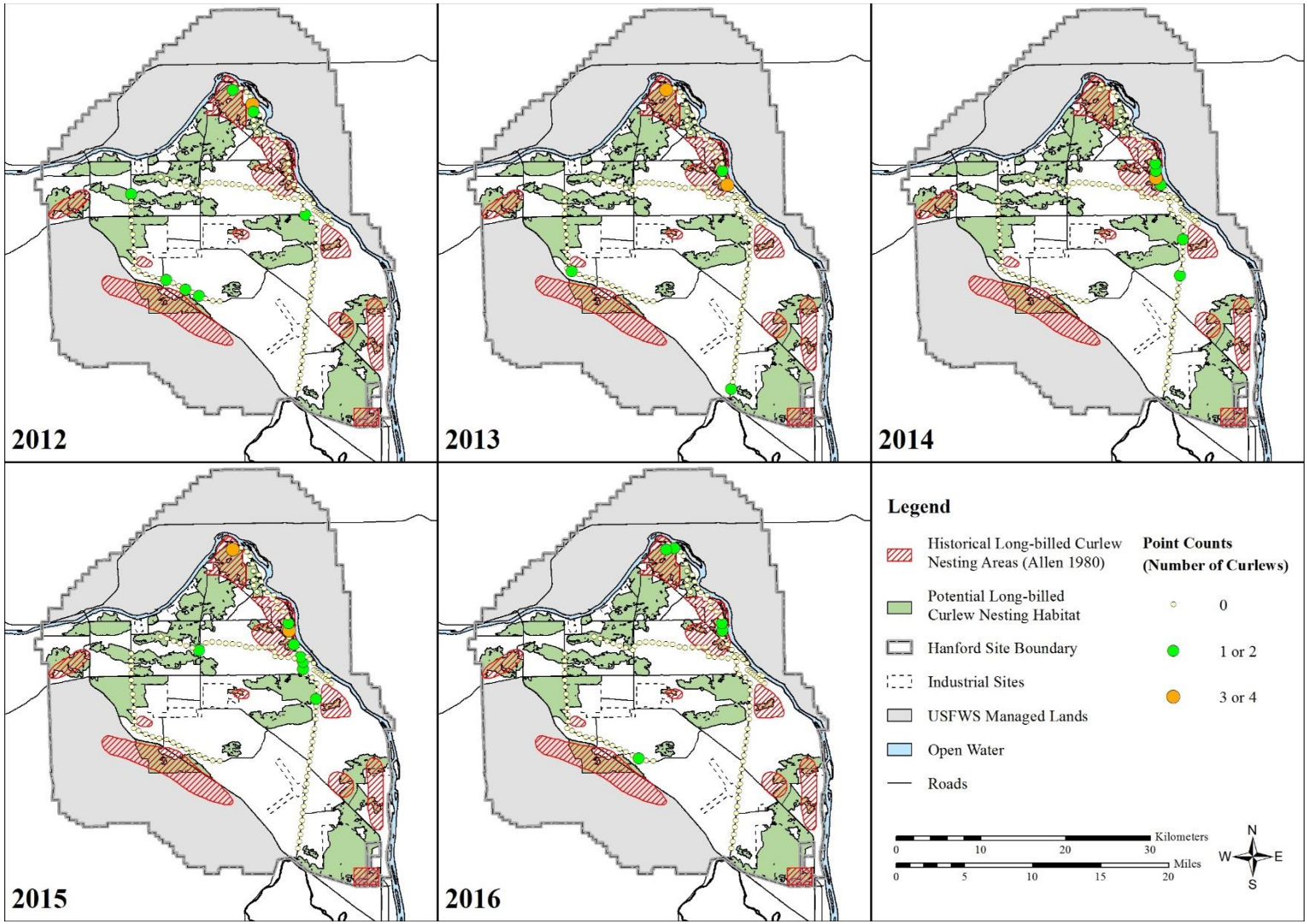


**Figure 4. Numbers of Long-billed Curlews detected on annual breeding bird surveys from 2012 to 2016.**

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