

DEFENDERS OF WILDLIFE REPORT

**HABITAT DISTURBANCES UNDER  
THE TEXAS HABITAT CONSERVATION PLAN  
FOR THE DUNES SAGEBRUSH LIZARD**



## ABOUT THIS REPORT AND THE SUPPLEMENTAL POWERPOINT PRESENTATION

This report follows up on our March 2013 white paper, *Dunes Sagebrush Lizard: The Cautionary Tale of a Candidate Species Denied*. The purpose is to share our discovery of habitat disturbances on dunes sagebrush lizard habitat enrolled under the Texas Habitat Conservation Plan. Our findings contradict the claims of the Texas Comptroller of Public Accounts that no surface disturbances have occurred under the Texas Plan through May 2013.

We have provided a PowerPoint presentation that supplements this report. The presentation shows more clearly the habitat disturbances from the report and reveals additional disturbances. You can download the presentation at the link below. The file size is large, so may require several minutes to download.

[www.defenders.org/publication/supplement-habitat-disturbances-under-texas-habitat-conservation-plan-dunes-sagebrush](http://www.defenders.org/publication/supplement-habitat-disturbances-under-texas-habitat-conservation-plan-dunes-sagebrush)

Coauthors: Ya-Wei Li, Anderson Shepard, and Tim Male  
GIS Specialist: Anderson Shepard



Defenders of Wildlife is a national, nonprofit membership organization dedicated to the protection of all native wild animals and plants in their natural communities.

Jamie Rappaport Clark, President and CEO  
Donald Barry, Executive Vice President  
© 2013 Defenders of Wildlife  
1130 17th Street, N.W.  
Washington, D.C. 20036-4604  
202.682.9400  
[www.defenders.org](http://www.defenders.org)

Cover: Dunes sagebrush lizard, courtesy [Mark L. Watson](#) / [Foter](#) / [CC BY-NC-ND](#)

## INTRODUCTION

In declining to list the dunes sagebrush lizard under the Endangered Species Act (ESA), the U.S. Fish & Wildlife Service (FWS) relied partly on conservation commitments in the Texas Habitat Conservation Plan. The plan describes the commitments only in vague terms, making it impossible to determine which ones will actually be implemented. The commitments are clarified in certificates of inclusion for each property enrolled under the plan. Under Texas law, however, the certificates are not available to the public or FWS. The only exception is the certificate for ConocoPhillips, which the company voluntarily disclosed.

Earlier this year, we disclosed these problems in our white paper, *Dunes Sagebrush Lizard: The Cautionary Tale of a Candidate Species Denied*.<sup>1</sup> In response, FWS noted that it will continue to monitor implementation of the Texas Plan.<sup>2</sup> The Texas Comptroller of Public Accounts, as the permit holder for the plan, is required to “monitor and track surface disturbing activities” and report monthly to FWS on the total acres of habitat disturbance. We obtained all monthly monitoring reports submitted as of May 24, 2013, each claiming that zero acres of actual lizard habitat had been disturbed across the over 138,640 acres enrolled under the Texas Plan. The annual report further states that “there were no disturbances impacting DSL habitat by Participants in 2012” and “no new surface disturbances by Participants in 2012.” The report cites “no compliance issues by Participants in 2012” and “no exceptions to [habitat] avoidance” requirements during this time.

Although the Texas Comptroller is responsible for the contents of the monthly and annual reports, it hires a third-party contractor, the Texas Habitat Conservation Foundation, to oversee implementation of the Texas Plan, including monitoring and tracking of surface disturbing activities. The certificate of formation for the foundation reveals that its only three board directors are registered lobbyists for the Texas Oil and Gas Association.<sup>3</sup> Yet oil and gas development is one of the primary threats to the lizard, as explained in the proposed listing rule for the lizard:

Oil and gas extraction activities have destroyed and fragmented dunes sagebrush lizard habitat and have resulted in population losses, including all localities within northeastern Crane County, Texas, where historical populations have been extirpated.... Much of the dunes sagebrush lizard’s current range has been developed *or is planned for future oil and gas development*.<sup>4</sup>

We believe it is imperative to diligently monitor the implementation of the Texas Plan, considering that (1) FWS cannot acquire the certificates of inclusion, (2) the organization administering the plan is managed by lobbyists for the oil and gas industry, and (3) the administrators have reported no habitat disturbance under the plan, despite the prevalence of existing oil and gas development in the enrolled areas. Diligent monitoring is also essential because the Texas Plan “limits habitat loss to 1 percent of delineated dunes sagebrush lizard habitat within the first three years, with a total of 10 percent of the entire delineated habitat allowed to be taken over the 30-year life of the plan.” Exceeding these thresholds could prompt FWS to reconsider listing the lizard.

This report documents multiple instances of surface disturbance on habitat enrolled under the ConocoPhillips Certificate of Inclusion. We describe how we identified the disturbances and show aerial images of the most obvious examples. A supplemental PowerPoint presentation shows these disturbances in greater detail and reveals additional disturbances we could not fit in the space of this report. For many of the disturbance, the presentation also identifies the latitude-longitude coordinates and the corresponding enrollment information in the certificate of inclusion. You can download the presentation here: [www.defenders.org/publication/supplement-habitat-disturbances-under-texas-habitat-conservation-plan-dunes-sagebrush](http://www.defenders.org/publication/supplement-habitat-disturbances-under-texas-habitat-conservation-plan-dunes-sagebrush). Our report underscores the need for FWS to structure conservation agreements in a way that allows the agency to verify whether permit holders are fulfilling their conservation commitments. For recommendations on how to do this and for additional background information on the Texas Plan, please see our earlier white paper on the topic.

## **1** HOW WE IDENTIFIED SURFACE DISTURBANCES

To verify the claims of no surface disturbance, we evaluated satellite and aerial images of areas enrolled under the certificate of inclusion for ConocoPhillips. We compared images taken in May 2012 (the certificate was signed on April 24, 2012) with images taken in September 2012 and June 2013 to verify whether enrolled habitat had been disturbed. This section describes the four primary steps of our analysis.

### **Step 1: Identify Dunes Sagebrush Lizard Mapped Habitat**

To identify lizard mapped habitat, we used the shapefile produced by Texas A&M University that shows areas where the lizard is likely to occur (Figure 1). This map is also used by FWS and the Texas Comptroller to track enrollment and other information under the Texas Plan. For example, it appears as Figure 1-2 in the Texas Plan and as Figure 1 in the annual report for 2012. The shapefile was obtained directly from FWS through a Freedom of Information Act request.

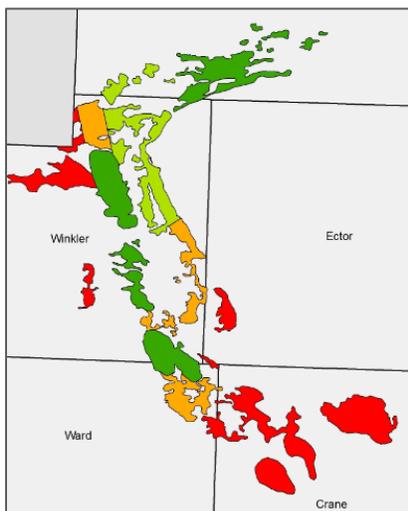


Figure 1. Mapped habitat of the dunes sagebrush lizard, color-coded by habitat quality.

## Step 2: Identify Areas Enrolled under the ConocoPhillips Certificate of Inclusion

After identifying lizard habitat, we determined which of those areas were enrolled under the certificate of inclusion for ConocoPhillips. Exhibit A of the certificate describes all enrolled areas using the Public Land Survey System (PLSS) format. This format identifies land by “sections,” each of which is nominally one square mile containing 640 acres. The exhibit also indicates whether ConocoPhillips enrolled an entire section or only portions of it. For example, in section 16 of Andrews County, only the southern half of the southwestern quarter of the section is enrolled (the PLSS format is “S/2 SW/4”). Hence, only 80 acres (one-half of one-quarter of 640 acres) is enrolled. Figure 2 illustrates how Exhibit A describes this section.

COPC LEASE/ MINERAL NUMBER	QTR/QTR	SECTION	BLOCK	SURVEY	COUNTY	STATE	ABSTRACT	GROSS ACRES
L-101735 L-101736	S/2 SW/4	16	A-42	PSL	ANDREWS	TEXAS	861	80

Figure 2. Example of how enrolled lands are described in Public Land Survey System format in Exhibit A of the ConocoPhillips Certificate of Inclusion.

After identifying each enrolled section, we located it on an interactive map on the website of the Railroad Commission of Texas, the agency that tracks oil and gas permitting for the state of Texas. On the website, the map is called the “Public GIS Map Viewer for Oil & Gas Wells, Pipeline Data and LP Gas Sites.”<sup>5</sup> We located enrolled sections using the “Survey/Abstract” search function on the interactive map and then exported maps of these sections. We then highlighted in yellow each enrolled section (Figure 3). As explained earlier, some sections are not enrolled in their entirety. For those sections, we highlighted the entire block in yellow to help visually locate it, but separately noted the fact of partial enrollment. We were careful to limit our analysis to only those portions of a section that are enrolled.

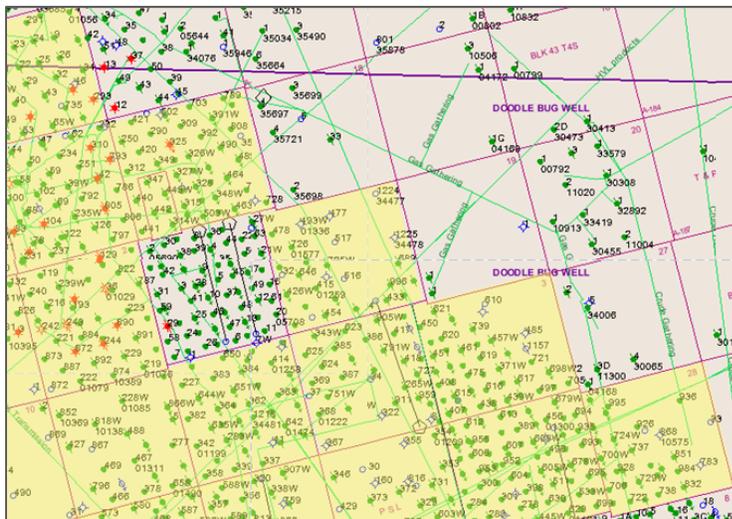


Figure 3. Map showing in yellow highlights enrolled areas in Crane County, Texas. We identified enrolled areas spatially using the website of the Railroad Commission of Texas. The dots represent wells associated with oil and gas development.

### Step 3: Combine Maps of Enrolled Areas and Lizard Mapped Habitat

Once we obtained maps of both enrolled areas and lizard habitat, we combined them to determine which areas met both criteria (Figure 4). Disturbances in these areas must comply with the avoidance, minimization, and mitigation requirements in the ConocoPhillips certificate of inclusion. For example, the certificate prohibits “new surface occupancy within 30 meters of actual occupied habitat, habitat that is unoccupied but contains structurally suitable elements, or dispersal habitat within shinnery oak corridors.” Disturbances must also be tracked and specified in monthly and annual reports.

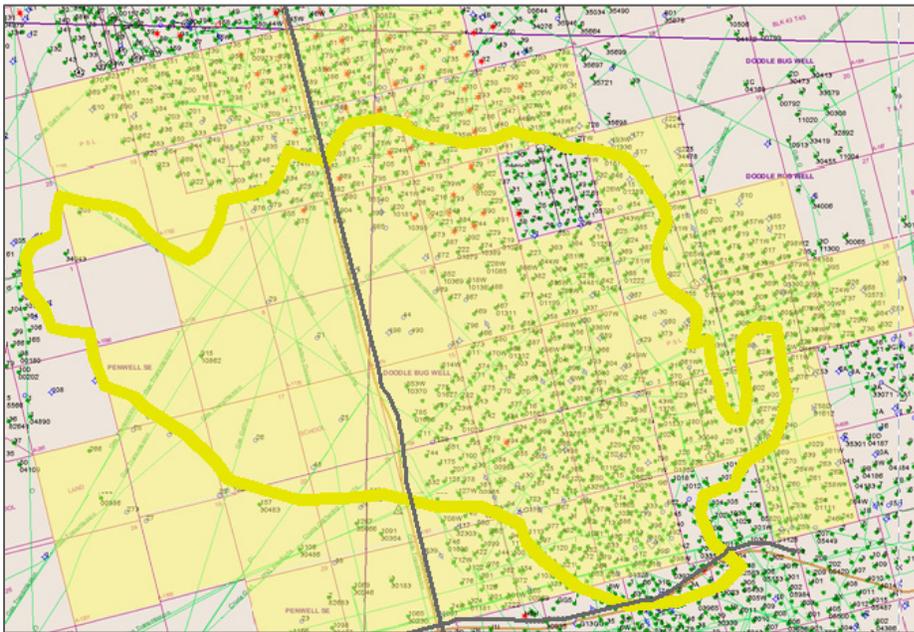


Figure 4. Combined map showing enrolled sections (yellow highlighted blocks) and lizard mapped habitat (area inside yellow outline).

### Step 4: Obtain and Compare Aerial Images of Enrolled Lizard Habitat from Different Time Periods

The certificate of inclusion was signed by ConocoPhillips and the Texas Habitat Conservation Foundation no later than April 24, 2012. By May 2012, any surface disturbance resulting from oil and gas development on enrolled habitat was required to comply with the conservation and reporting requirements in the certificate. We compared aerial images taken in May 2012 with images taken in September 2012 and June 2013 to detect surface disturbances. These dates were chosen because they each represented the best available (cloud-free, high resolution) public-use land images from May 2012 to present. Paid images from commercial sources would have been higher resolution and likely revealed additional disturbances, but were unnecessary for the scope of this report.

- Images from May 2012 came from the ETM+ (Enhanced Thematic Mapper Plus) sensors on board the Landsat 7 satellite. The Landsat Program is a joint effort of the USGS and

NASA and was established to gather land images of Earth from space. Landsat 7 was launched in 1999 and crosses every point on Earth once every 16 days. The satellite captures images in the Red-Green-Blue (RGB) color bands at 30 meters resolution. It also captures black-and-white (“panchromatic”) images at 15 meters resolution. We used panchromatic images because they are sharper than color images and because our analysis did not require RGB colors. Diagonal white lines appear in some of the May 2012 images. The reason is that in 2003, the scan line corrector in the ETM+ instrument failed, resulting in images with incomplete or overlapping data. The white lines did not affect our analysis because they did not conceal areas we scanned for surface disturbances.

- Images from September 2012 came from the USDA Farm Service Agency’s National Agricultural Imagery Program (NAIP), which employs cameras mounted on airplanes. The NAIP collects aerial images of the United States on approximately a three-year cycle. Images for west Texas were last taken in September 2012 and have a 1 meter ground resolution, which is higher than the 15 meter resolution from Landsat 7. The NAIP images provide the clearest pictures of surface disturbance.
- Images from June 2013 came from the OLI (Operational Land Imager) sensors on board the Landsat 8 satellite launched in February 2013. Like Landsat 7, Landsat 8 crosses every point on Earth once every 16 days. The OLI is similar to the ETM+ from Landsat 7, but provides higher quality images. Like the ETM+, the OLI collects panchromatic images at 15 meters ground resolution.

We used Google Earth Engine to browse Landsat 7 images and downloaded select images via USGS Earth Explorer. We downloaded Landsat 8 OLI images via USGS Earth Explorer and then sorted and explored the images using ArcGIS software. We downloaded NAIP images via the USDA Geospatial Data Gateway and then sorted and explored the images using ArcGIS.

Once we obtained all images, we imported them into ArcGIS. We then overlaid the images with our maps of lizard habitat and enrolled areas. The combined image shows three crucial data: the physical features of the landscape, the mapped lizard habitat, and the enrolled areas. By comparing images from May 2012 to those from September 2012 and June 2013, we were able to identify surface disturbances in enrolled habitat resulting from oil and gas development activities. These activities are specified in Section 6 of the Texas Plan and Section II of the ConocoPhillips Certificate of Inclusion, and include “seismic and land surveying,” “construction,” “drilling and completion,” and “operations and maintenance.”

Because all monthly and annual monitoring reports claim no acres of surface disturbance, we should have found no new disturbances associated with oil and gas development. In reality, however, we found multiple disturbances on enrolled habitat in Andrews, Crane, and Winkler counties.

## 2 OUR FINDINGS

This section shows examples of surface disturbances on enrolled lizard habitat associated with oil and gas development activities. Additional examples are shown in the PowerPoint presentation that accompanies this report. Because every monthly monitoring report through May 2013 claims zero acres of habitat disturbance, documentation of any disturbance would rebut this claim.

Figure 5 shows an overview map of the three counties where we document disturbances. The black rectangles show the areas where we will highlight disturbances in the remainder of this document.

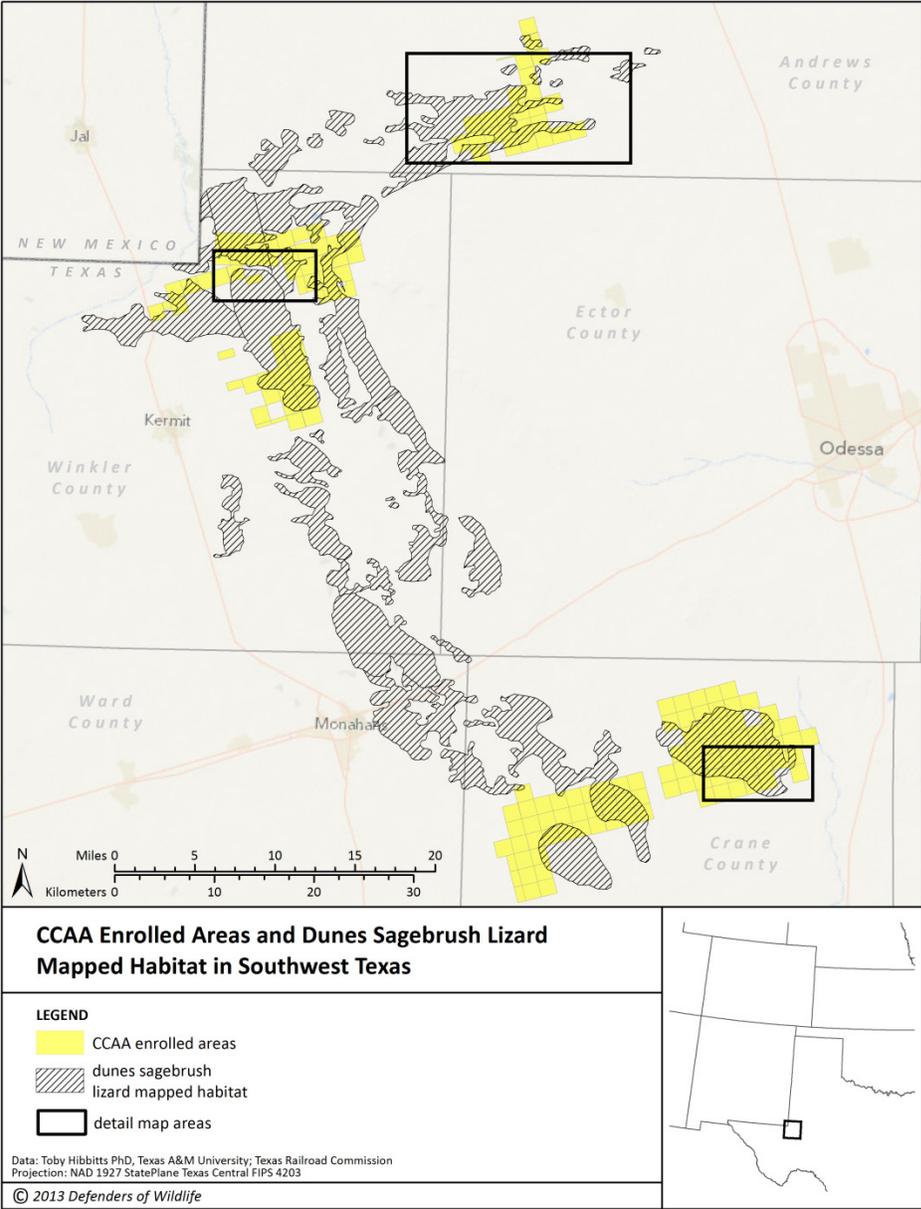


Figure 5. Overview map of lizard habitat enrolled under the Texas Plan.

### **Surface disturbances in Winkler County (Figures 6 – 8, pages 11 – 14)**

Figure 6 shows disturbances in Winkler County that appear after May 2012. We found an approximately 40-meter wide land clearing that runs for several miles, cutting through enrolled habitat. Figure 7 shows the clearing expanded from May to September 2012. In May, the clearing was mostly absent from the image. By July, the clearing had expanded significantly from both the west and east. By September, the clearing was completed, running uninterrupted from both directions. Figure 8 contains close-up images of various sections of the clearing, including one image showing a pickup truck for size reference. The accompanying PowerPoint presentation shows the latitude-longitude coordinates and the enrollment information for the sections of the clearing that cut through mapped lizard habitat.

### **Surface disturbances in Crane County (Figures 9 – 10, pages 15 – 17)**

Figure 9 is a detail map showing disturbances in portions of Crane County. Compared to the image from May 2012, the images from September 2012 and June 2013 show new roads and new or expanded well pads, all in enrolled areas of lizard habitat. Figure 10 shows close-up images of some of these disturbances.

### **Surface disturbances in Andrews County (Figures 11 – 12, pages 18 – 20)**

Figure 11 is a detail map showing disturbances in portions of Andrews County. Compared to the image from May 2012, the images from September 2012 and June 2013 show new roads and new or expanded well pads. For completeness, Figure 12 shows disturbances in both enrolled lizard habitat and enrolled adjacent buffer lands. Figure 12, however, shows only close-up images of the enrolled lizard habitat, where disturbances are the most troubling.

## **3 LESSONS LEARNED**

Earlier this year, we explained why the Texas Plan was destined to fail. Its conservation requirements are extremely vague, its adaptive management provision is ineffective, and Texas law shields the underlying certificates of inclusion from FWS review. These and other shortcomings should have prevented FWS from approving the plan or using it to decline listing the dunes sagebrush lizard.

We were doubly disappointed to discover the unreported surface disturbances shown in this document. They suggest serious gaps with how the Texas Comptroller is implementing and FWS is overseeing the Texas Plan. Alarm bells should have went off when the Comptroller repeatedly claimed not one acre of disturbance across the over 138,640 enrolled under the Texas Plan. This claim becomes even more incredulous when we recall that portions of the lizard's habitat is "planned for future oil and gas development" and that all monitoring data originate from an organization directed by oil and gas lobbyists. Yet no one paused to question this unlikely scenario and verify the data.

Even if the Texas Comptroller had released all certificates of inclusion for review, the surface disturbances we identified would have still gone unreported. The solution is for FWS to demand robust monitoring and periodically verify monitoring results. Although landowners may deny FWS access to their property, GIS tools allow the agency to track compliance and habitat conditions remotely and affordably. All the images and other data in this report were free, publicly available, and easily analyzed in under a week. Had we used paid, commercial images, the results would have been even more profound. FWS can use these same tools to require permit holders to explain any discrepancies with their monitoring reports.

As FWS tackles the long list of candidate and petitioned species, it appears the agency will rely increasingly on voluntary agreements to conserve species and possibly avoid the need for listing. These are laudable goals that Defenders supports. But unless those agreements are well designed and implemented, the protections they offer are likely to fall short of expectations. We hope the cautionary tale of the dunes sagebrush lizard sends a resounding message to FWS and others as they create better models for candidate species conservation.

**Surface disturbances in Winkler County (Figures 6 – 8)**

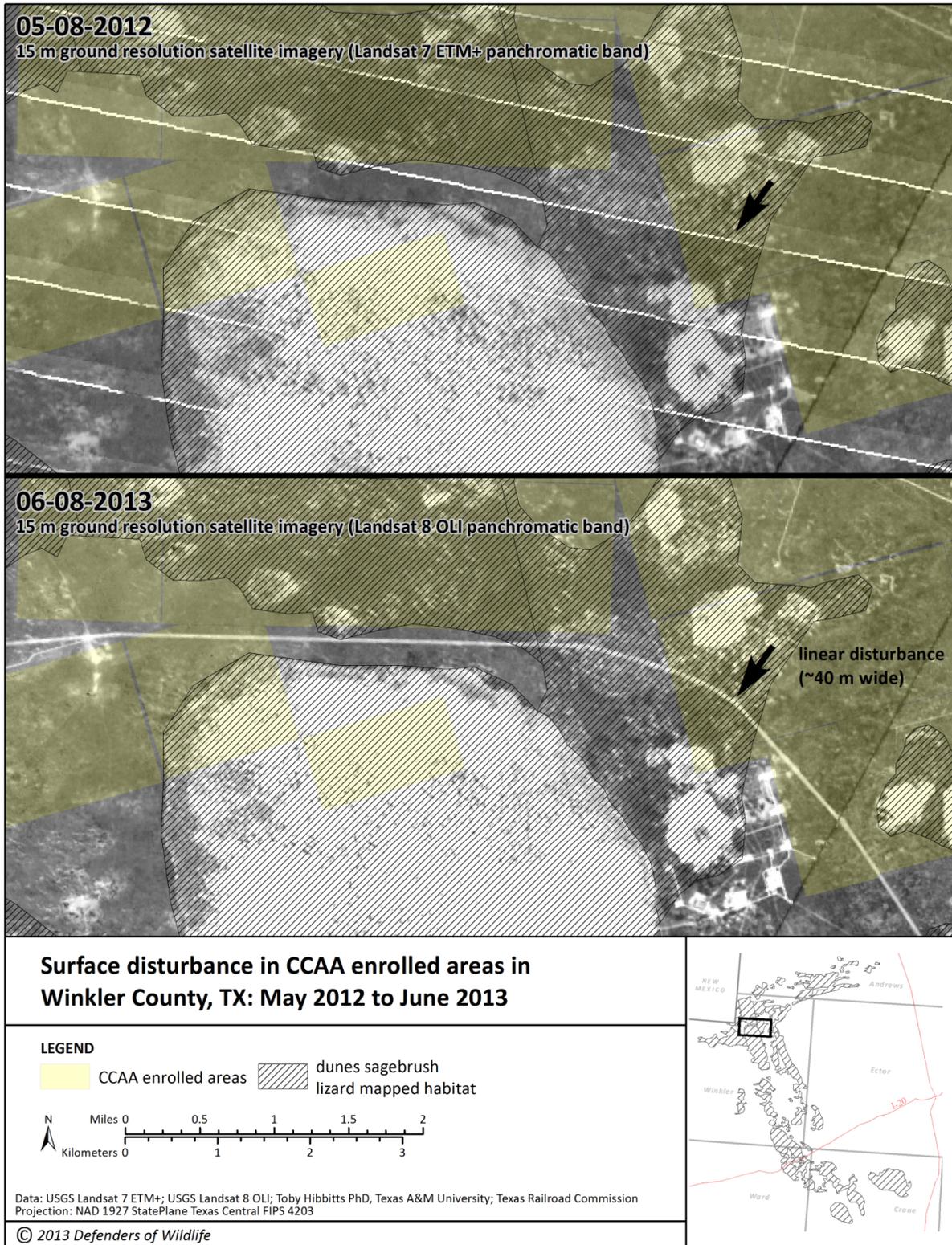


Figure 6. Detail map of select surface disturbance in Winkler County under the CCAA (candidate conservation agreement with assurances) portion of the Texas Plan. As explained earlier, the multiple white diagonal lines are an artifact of the satellite images and do not represent actual features on the landscape.

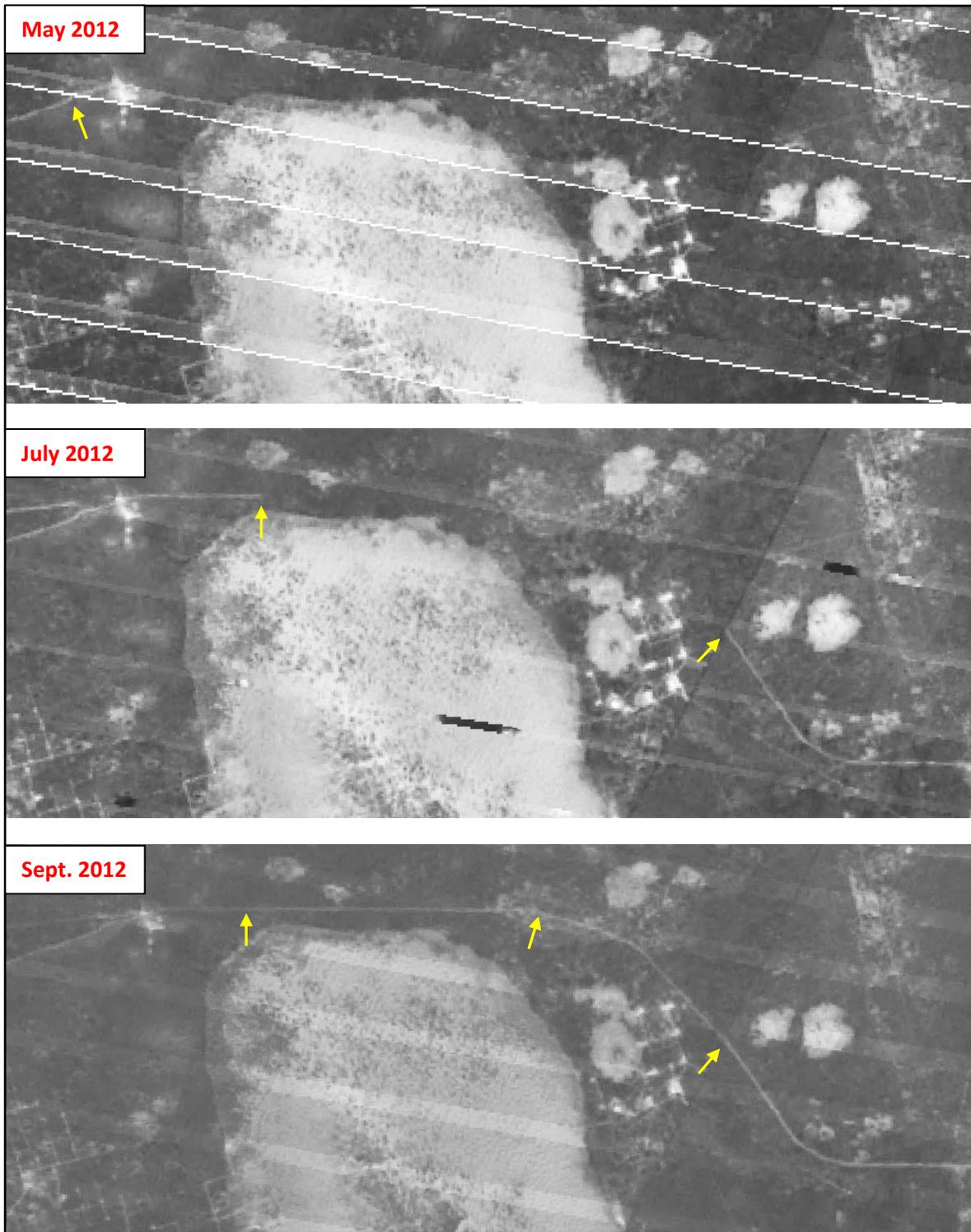


Figure 7. Expansion of surface disturbance from May to September 2012. Image source: Landsat 7 ETM+. As explained earlier, the multiple white diagonal lines are an artifact of the satellite images and do not represent actual features on the landscape.

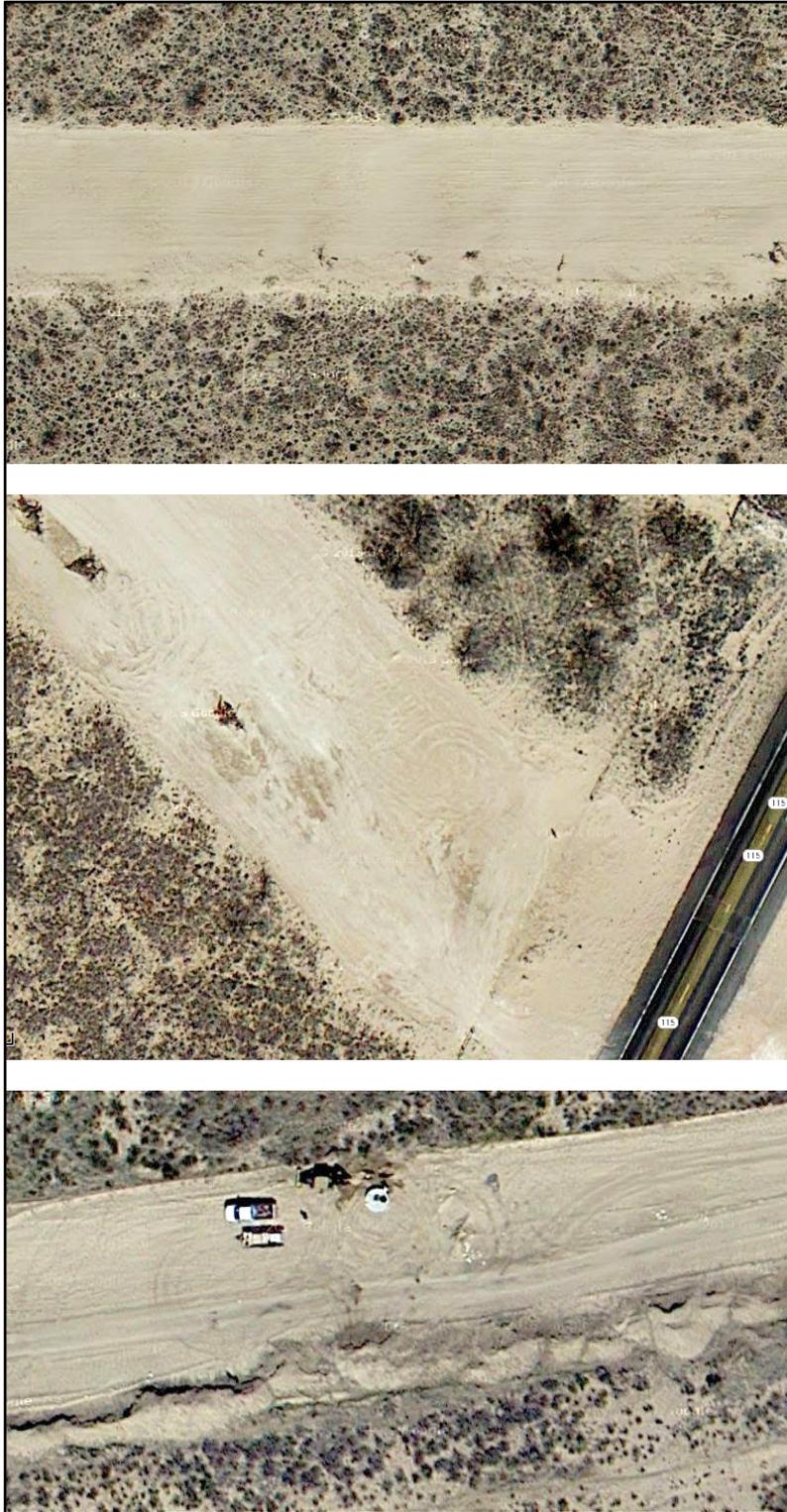


Figure 8. Close-up images of surface disturbance from figures 6 and 7, all of which were absent in May 2012. Image source: September 2012, USDA Farm Service Agency's National Agricultural Imagery Program (NAIP).

**Surface disturbances in Crane County (Figures 9 – 10)**

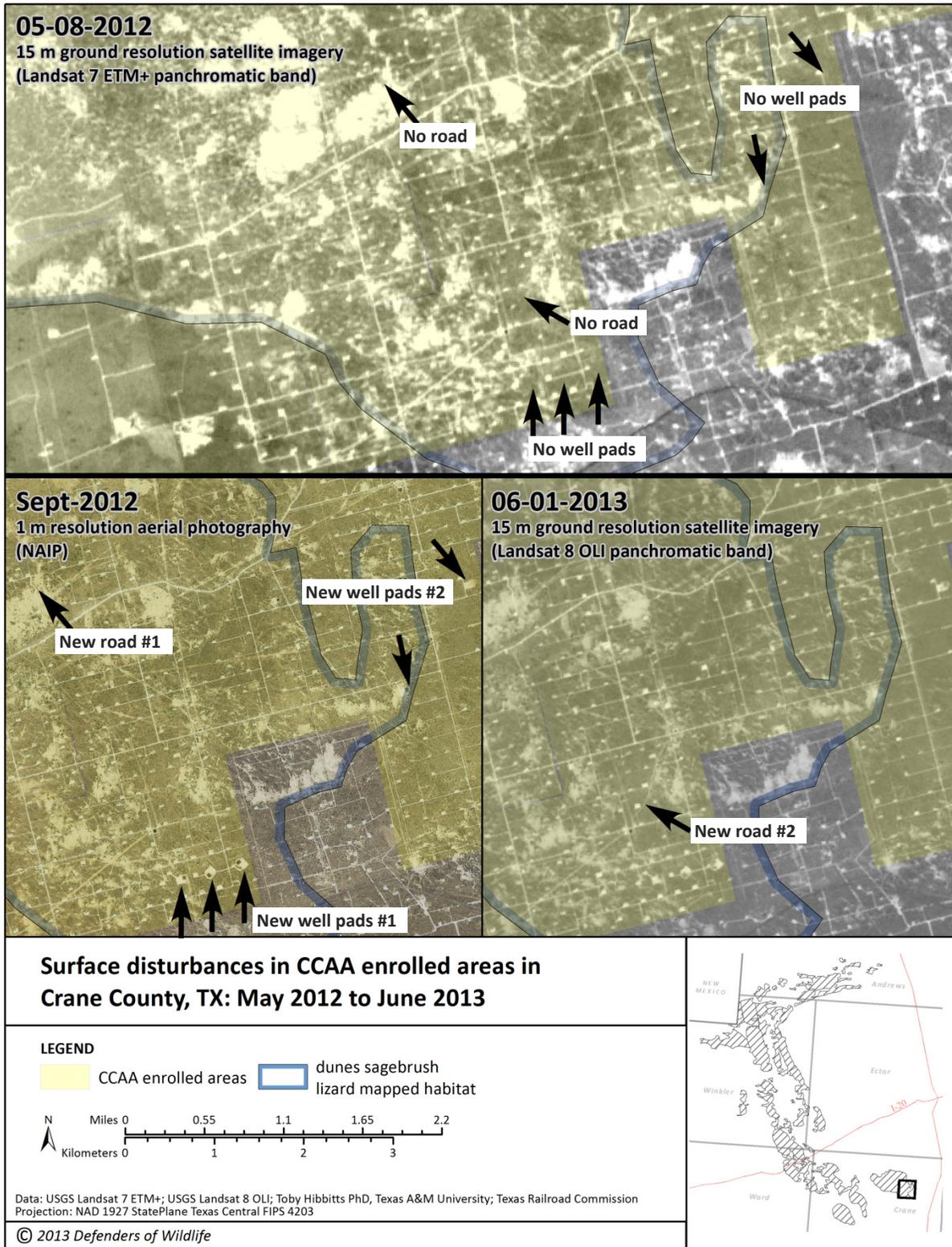


Figure 9. Detail map of select surface disturbances in Crane County. See Figure 10 for close-up images of numbered disturbances.



Figure 10. Close-up images of surface disturbances. Each image corresponds to a specific disturbance numbered in Figure 9.

**Surface disturbances in Andrews County (Figures 11 – 12)**

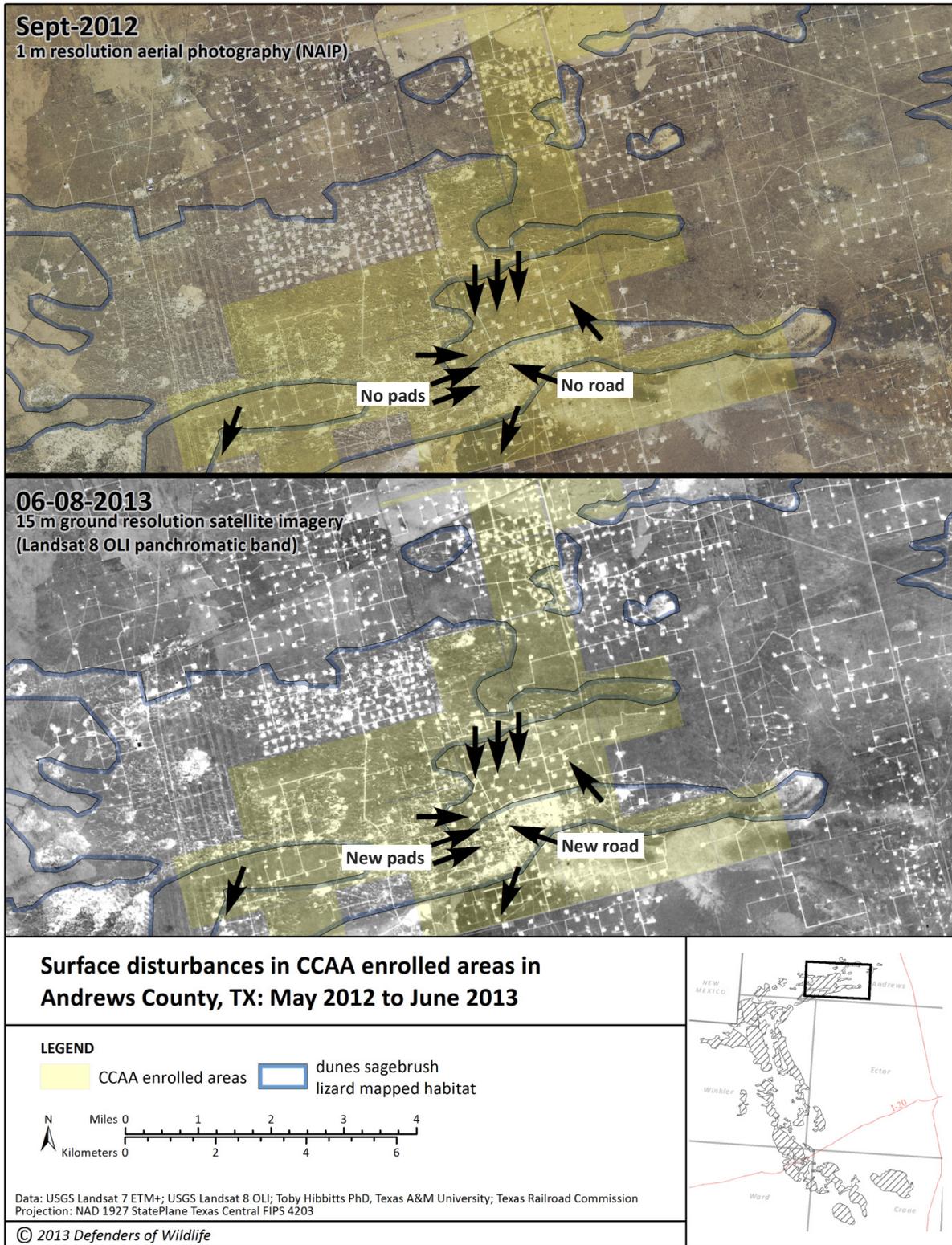


Figure 11. Detail map of select surface disturbances in Andrews County. See Figure 12 for close-up images of disturbances in enrolled habitat specifically.

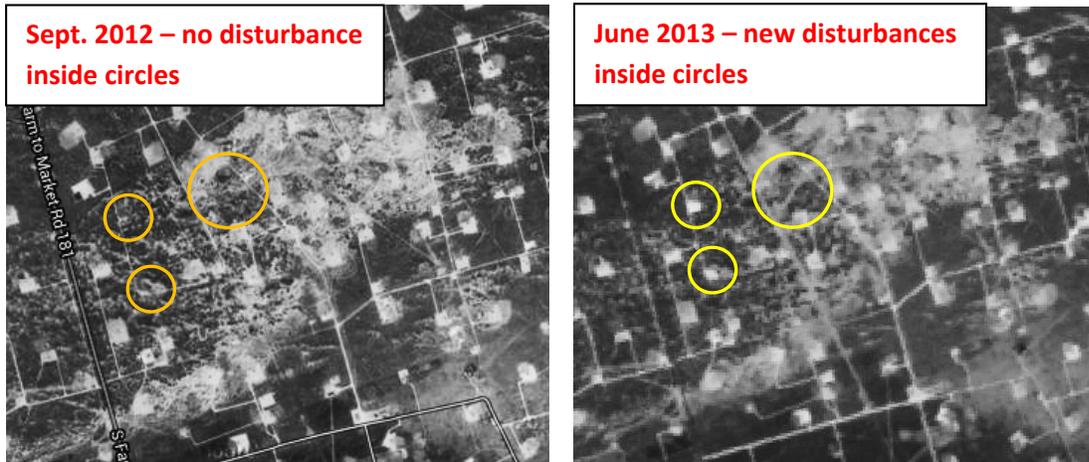


Figure 12. Close-up images of sections of Figure 11 showing new disturbances (well pad and connector road) appearing between September 2012 and June 2013. Only disturbances in enrolled habitat are circled (the disturbances in enrolled buffer lands are ignored). These images are shown only at the lower 15-meter resolution because 1 meter resolution images are not available for June 2013.

## ENDNOTES

<sup>1</sup> The white paper is available at: <https://www.defenders.org/publication/dunes-sagebrush-lizard-cautionary-tale-candidate-species-denied>

<sup>2</sup> Phil Taylor, *Texas shields free-market habitat program from federal scrutiny*, Greenwire, March 6, 2013, available at: <http://www.cenews.net/greenwire/stories/1059977401>

<sup>3</sup> The three board members are Rob Looney, Deb M. Hastings, and Mari V. Ruckel. Certificate of Formation of Texas Habitat Conservation Foundation, Filed in the Office of the Secretary of State of Texas on February 24, 2012.

<sup>4</sup> Endangered and Threatened Wildlife and Plants; Proposed Rule to List Dunes Sagebrush Lizard (*Sceloporus arenicolus*) as Endangered, 75 Fed. Reg. 77805-06 (Dec. 14, 2010) (emphasis added).

<sup>5</sup> The map is accessible at: <http://gis2.rrc.state.tx.us/public/startit.htm>