

**From:** [Bush, Jodi](#)  
**To:** [Jeff Berglund](#)  
**Subject:** Fwd: Keystone/PAC ArcGIS file  
**Date:** Monday, January 26, 2015 3:11:16 PM  
**Attachments:** [GRSG\\_KXL\\_buffers\\_TML\\_20150126.pdf](#)

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fyi

Jodi L. Bush  
Field Supervisor  
Montana Ecological Services Office  
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Helena, MT 59601  
(406) 449-5225, ext.205

----- Forwarded message -----

**From:** **Lickfett, Todd** <[todd.lickfett@fws.gov](mailto:todd.lickfett@fws.gov)>  
**Date:** Mon, Jan 26, 2015 at 2:30 PM  
**Subject:** Re: Keystone/PAC ArcGIS file  
**To:** "Boroja, Maria" <[maria\\_boroja@fws.gov](mailto:maria_boroja@fws.gov)>  
**Cc:** Lara Juliusson <[lara\\_juliusson@fws.gov](mailto:lara_juliusson@fws.gov)>, Drue DeBerry <[drue\\_deberry@fws.gov](mailto:drue_deberry@fws.gov)>, Michael Thabault <[michael\\_thabault@fws.gov](mailto:michael_thabault@fws.gov)>, Nicole Alt <[nicole\\_alt@fws.gov](mailto:nicole_alt@fws.gov)>, Bridget Fahey <[bridget\\_fahey@fws.gov](mailto:bridget_fahey@fws.gov)>, Eliza Hines <[eliza\\_hines@fws.gov](mailto:eliza_hines@fws.gov)>, Robert Harms <[robert\\_harms@fws.gov](mailto:robert_harms@fws.gov)>, Jodi Bush <[jodi\\_bush@fws.gov](mailto:jodi_bush@fws.gov)>, Brent Esmoil <[brent\\_esmoil@fws.gov](mailto:brent_esmoil@fws.gov)>

All-

See attached map and summary below with updated numbers for PACs that are intersected by the pipeline/pipeline buffers. Let me know if there are any questions!

Table: Miles of pipeline intersecting each PAC unit, and acreage for intersecting pipeline buffers within each PAC unit.

PAC	Pipeline length (miles)	Buffers			
		110 ft (acres)	200 ft (acres)	3.1 mi (acres)	5 mi (acres)
101-Northern Montana-MZ1	20.4	544.0	989.4	72399.3	118689.1
103-Yellowstone Watershed-MZ1	17.1	456.7	831.5	55218.8	85831.4
108-Yellowstone Watershed-MZ1	0.0	0.0	0.0	19517.7	45227.0
110-Dakotas-MZ1	0.0	0.0	0.0	818.7	9726.7
111-Dakotas-MZ1	0.0	0.0	0.0	0.0	81.5
112-Dakotas-MZ1	18.2	485.1	882.3	57391.2	73518.9
<b>TOTAL</b>	<b>55.7</b>	<b>1485.8</b>	<b>2703.2</b>	<b>205345.7</b>	<b>333074.6</b>

On Mon, Jan 26, 2015 at 11:44 AM, Boroja, Maria <[maria\\_boroja@fws.gov](mailto:maria_boroja@fws.gov)> wrote:

Todd could you please see if you can update the numbers for this for me.

----- Forwarded message -----

**From:** **Juliusson, Lara** <[lara\\_juliusson@fws.gov](mailto:lara_juliusson@fws.gov)>

**Date:** Mon, Jan 26, 2015 at 11:27 AM

**Subject:** Keystone/PAC ArcGIS file

**To:** Maria Boroja <[maria\\_boroja@fws.gov](mailto:maria_boroja@fws.gov)>

Maria,

Here is the location of the ArcGIS project file I started for the Keystone numbers. I was interrupted before I could finish the tables labeling miles and acres within each buffer for each PAC area. I also didn't get to finish the map sources/disclaimer, etc.

I:\GIS\PROJECTS\20150122\_LJ\_MTDaks\_MBor\_KeystonePACbuffers\Mxds\GRSG\_KXL\_buffers.mxd

Lara Juliusson, Geographer/Ecologist  
Sage-grouse Energy Team  
U.S. Fish and Wildlife Service,  
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[Lara\\_Juliusson@fws.gov](mailto:Lara_Juliusson@fws.gov)

303-236-9876

<http://www.fws.gov/mountain-prairie/>

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*Join me on LinkedIn*

<http://www.linkedin.com/pub/lara-juliusson/5/918/7a4>

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[Todd Lickfett, Fish and Wildlife Biologist](#)

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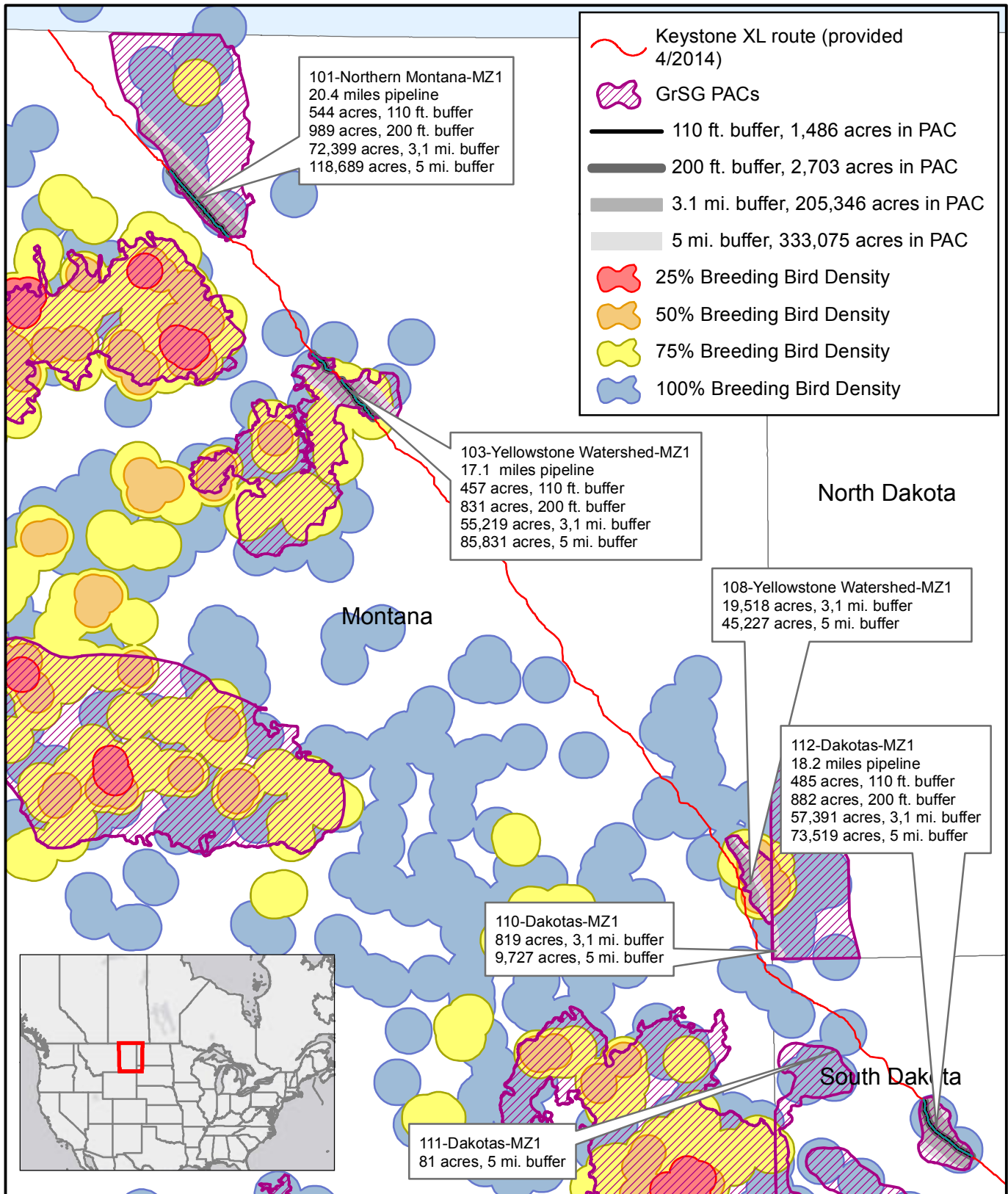
303-236-4265 (office)

217-260-5081 (alt cell)



## U.S. Fish & Wildlife Service

### Intersection of Proposed Keystone XL Pipeline and Pipeline Buffer with Greater Sage-grouse PACs



Created By: US FWS, R6 RO

Produced: 1/26/2015

Basemap: ESRI State Boundaries, ESRI Light Gray Canvas

File: GRSG\_KXL\_buffers\_TML\_20150126

The USFWS makes no warranty for use of this map.

Original data were compiled from various sources.

Spatial information may not meet National Map

Accuracy Standards. This information may be updated

without notification.



Datum: NAD 83

Lek buffer-distance estimates for linear features based on:  
Manier, D.J., Bowen, Z.H., Brooks, M.L., Casazza, M.L., Coates,  
P.S., Deibert, P.A., Hanser, S.E., and Johnson, D.H., 2014,  
Conservation buffer distance estimates for Greater Sage-Grouse  
—A review: U.S. Geological Survey Open-File Report 2014-1239,  
14 p., <http://dx.doi.org/10.3133/ofr20141239>.  
ISSN 2331-1258 (online)