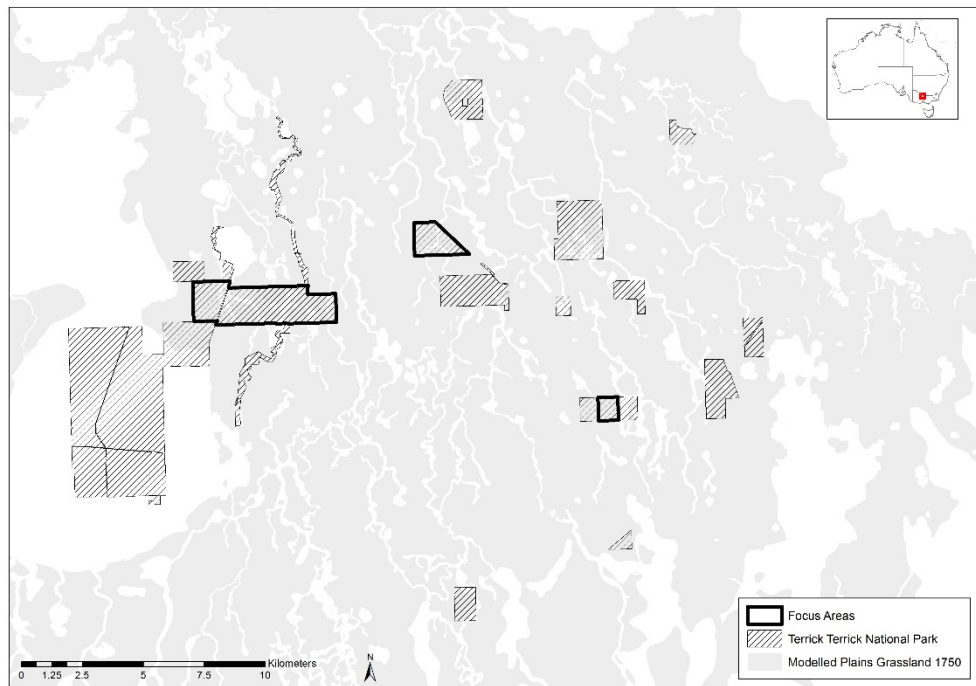


**Supplementary material for the manuscript: Climate-mediated changes to grassland structure determine habitat suitability for the critically-endangered plains-wanderer (*Pedionomus torquatus*)**

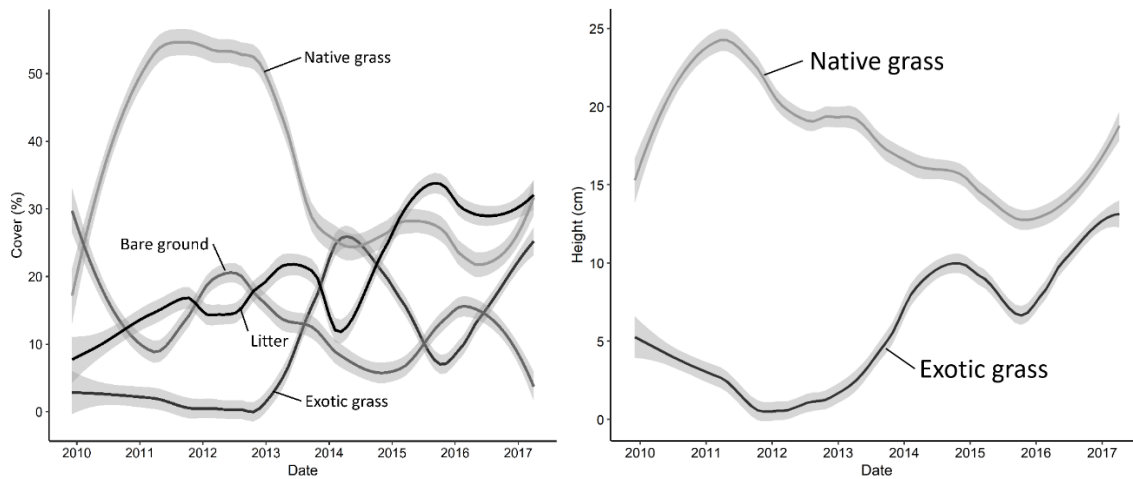


**Supplementary Figure 1.** Study region, showing the multiple sites that make up Terrick Terrick National Park (TTNP). The survey sites within TTNP are shown. The grey shaded areas show the modelled 1750 distribution of the Plains Grassland ecological vegetation class. Data source: DELWP (2008) NV1750\_EVCBCS <https://www.data.vic.gov.au/data/dataset/native-vegetation-modelled-1750-ecological-vegetation-classes>

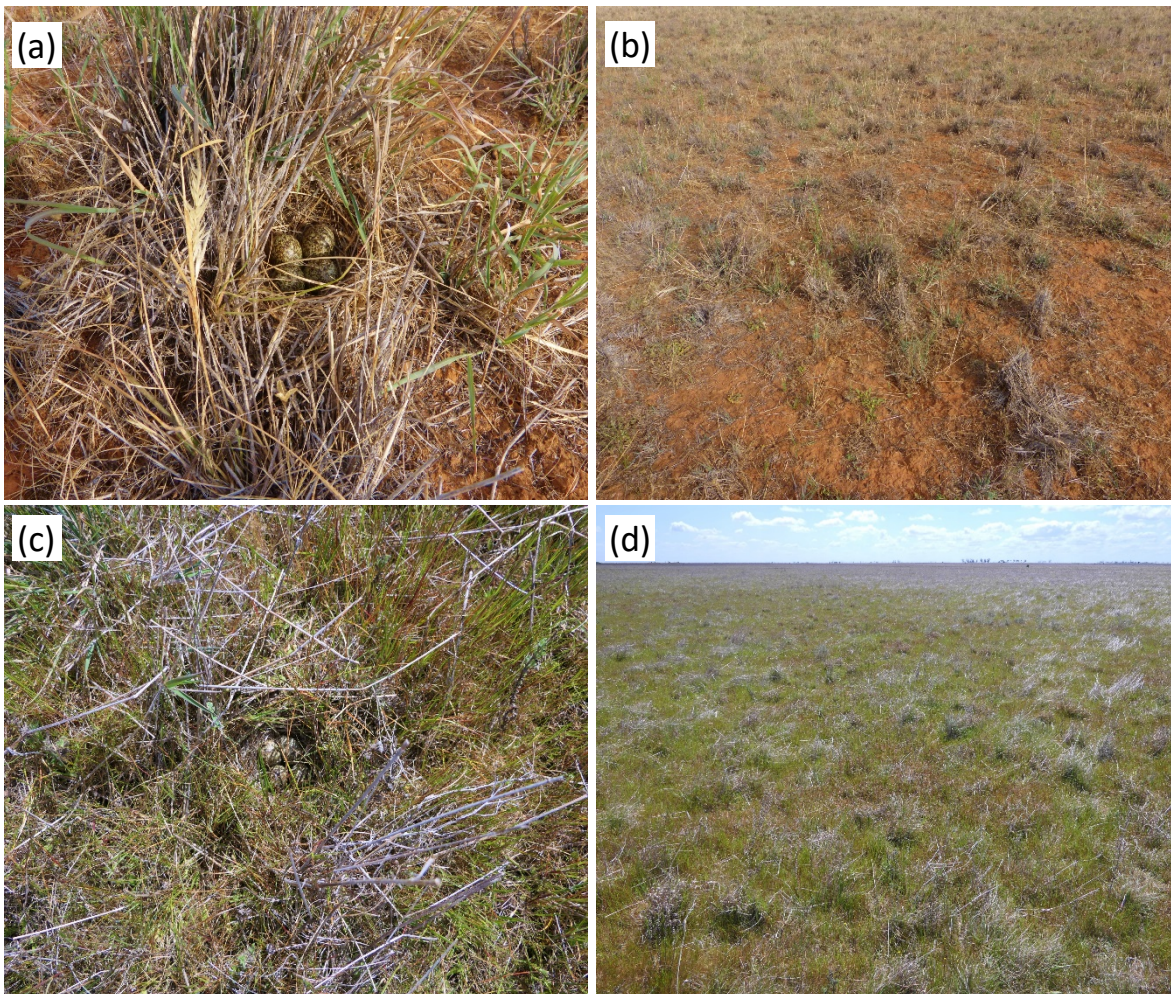
**Supplementary Table 1.** Number of surveys conducted each year in each paddock.

Paddock name	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
Creek	1	1	1	2	1	2	1	2
Creek SW	1	1	1	2	1	2	1	1
Davies	1	1	1	2	1	2	1	1
Finns SE			2*	1	1	2		1
Finns N				1			1	1
Finns W				1		1	1	1
Kotta				2	1	1	2	1
Possum	3	2	2	2	1	1	2	1
Speargrass	1		1	1	1	1	2	1
TT East						1	3	1
Yarran N	1		1	2	1	3	1	1
Yarran S	2	1	1	2	1	2	1	1
<b>Total</b>	<b>10</b>	<b>6</b>	<b>10</b>	<b>18</b>	<b>9</b>	<b>18</b>	<b>16</b>	<b>13</b>

\*Finns was originally one paddock which was divided into three paddocks in 2012/13. The initial two surveys recorded as Finns SE occurred across all three Finns areas, prior to separation.



**Supplementary Figure 2.** Loess smoother lines summarising the trend in the cover of four habitat variables in Terrick Terrick National Park from 2010 to 2017. This non-parametric method uses a locally-weighted regression to fit a polynomial surface that describes the trends for each habitat variable over time. We chose a span of 0.4 (~20 weeks) for the loess smoother. The smoother plot was constructed using the GGPlot2 package (Wickham 2016 *ggplot2: elegant graphics for data analysis*. Springer).



**Supplementary Figure 3.** Plains wanderer nests observed in surveys. The 2015 nest and the immediate area around the nest are shown in (a) and (b), respectively. The 2017 nest and the immediate area around the nest are shown in (a) and (b), respectively.