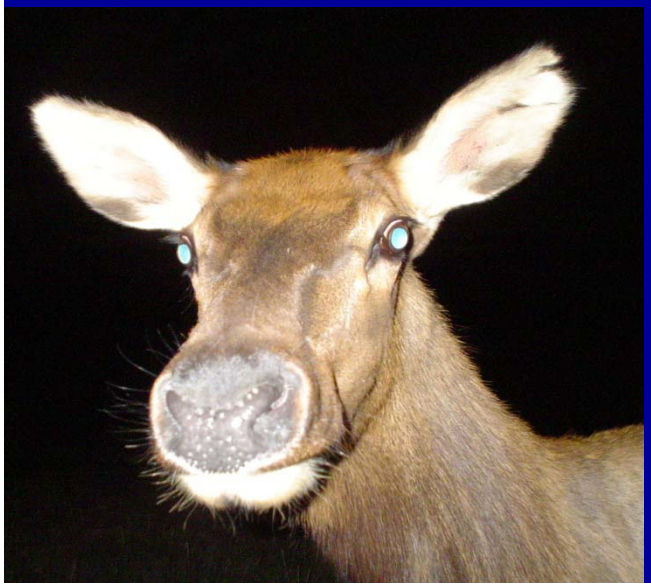
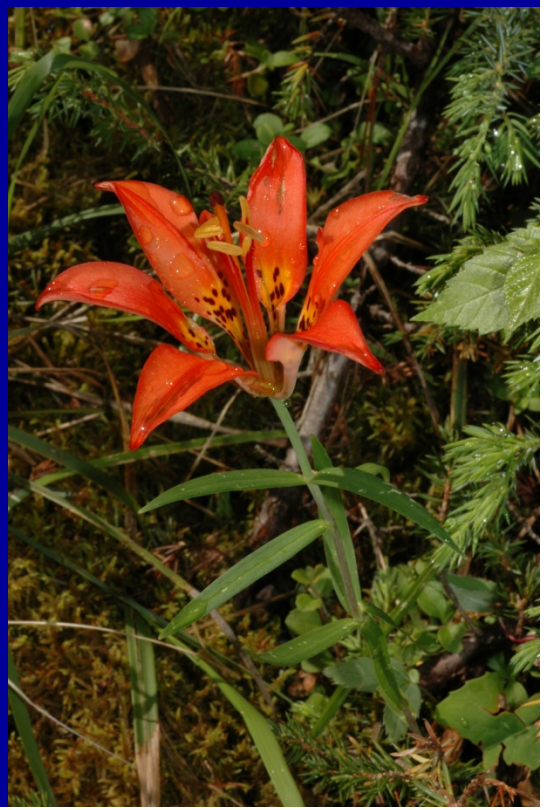
Results of measuring residual vegetation in the Northern Black Hills, South Dakota 2010



by

Daryl E. Mergen

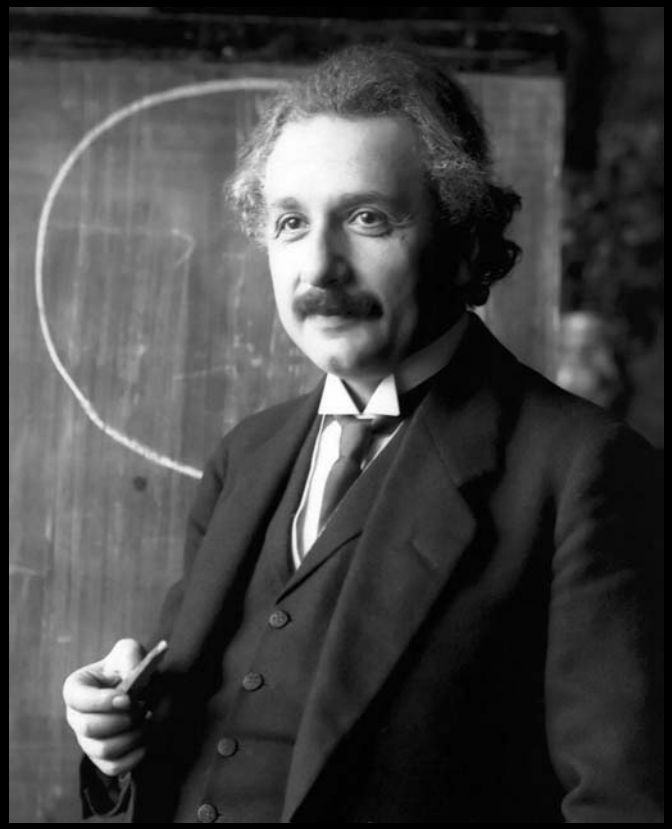


Ocular estimates

Robel pole

Estimate missing

Measure remaining

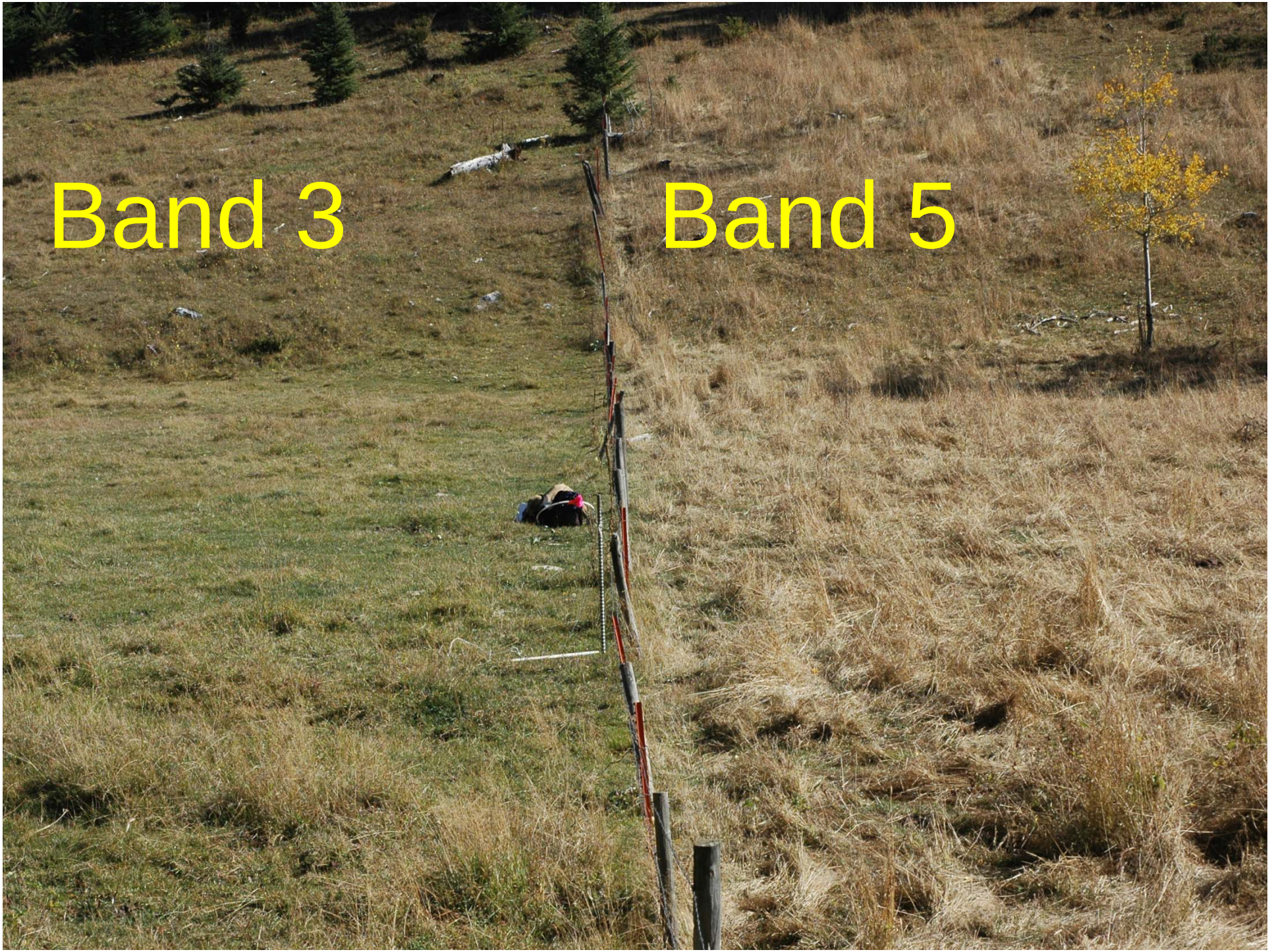


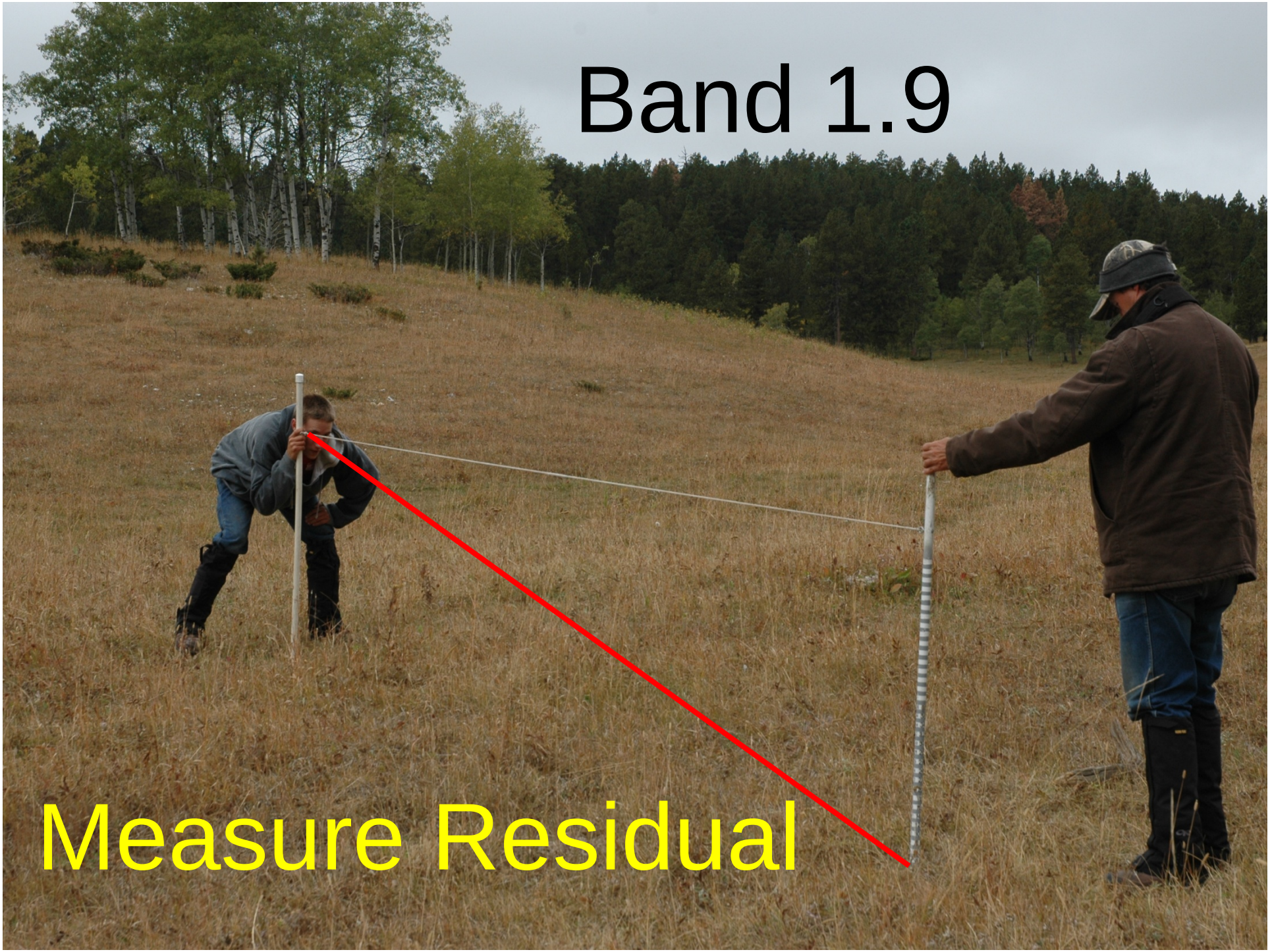
biased

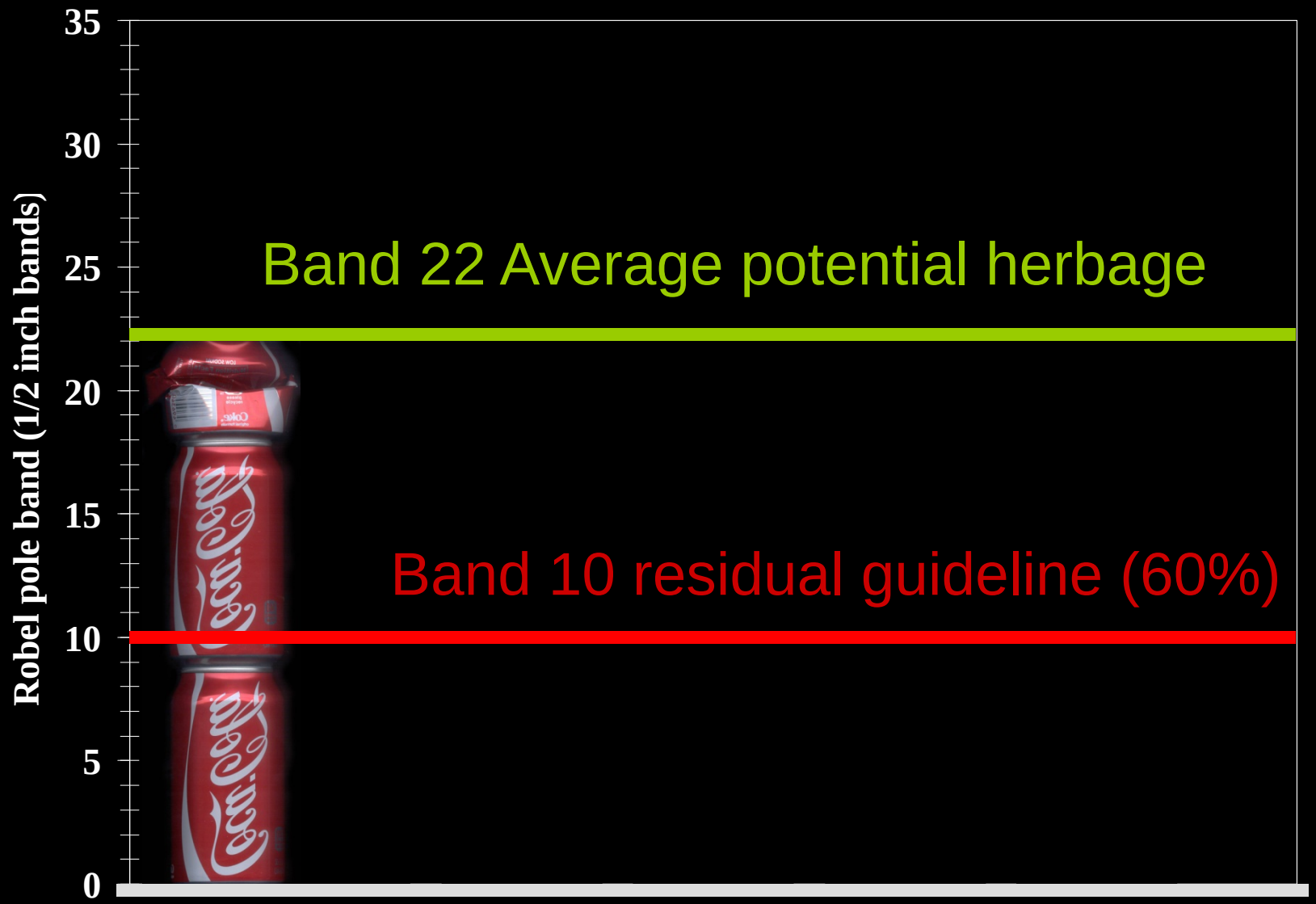
unbiased

Underestimate

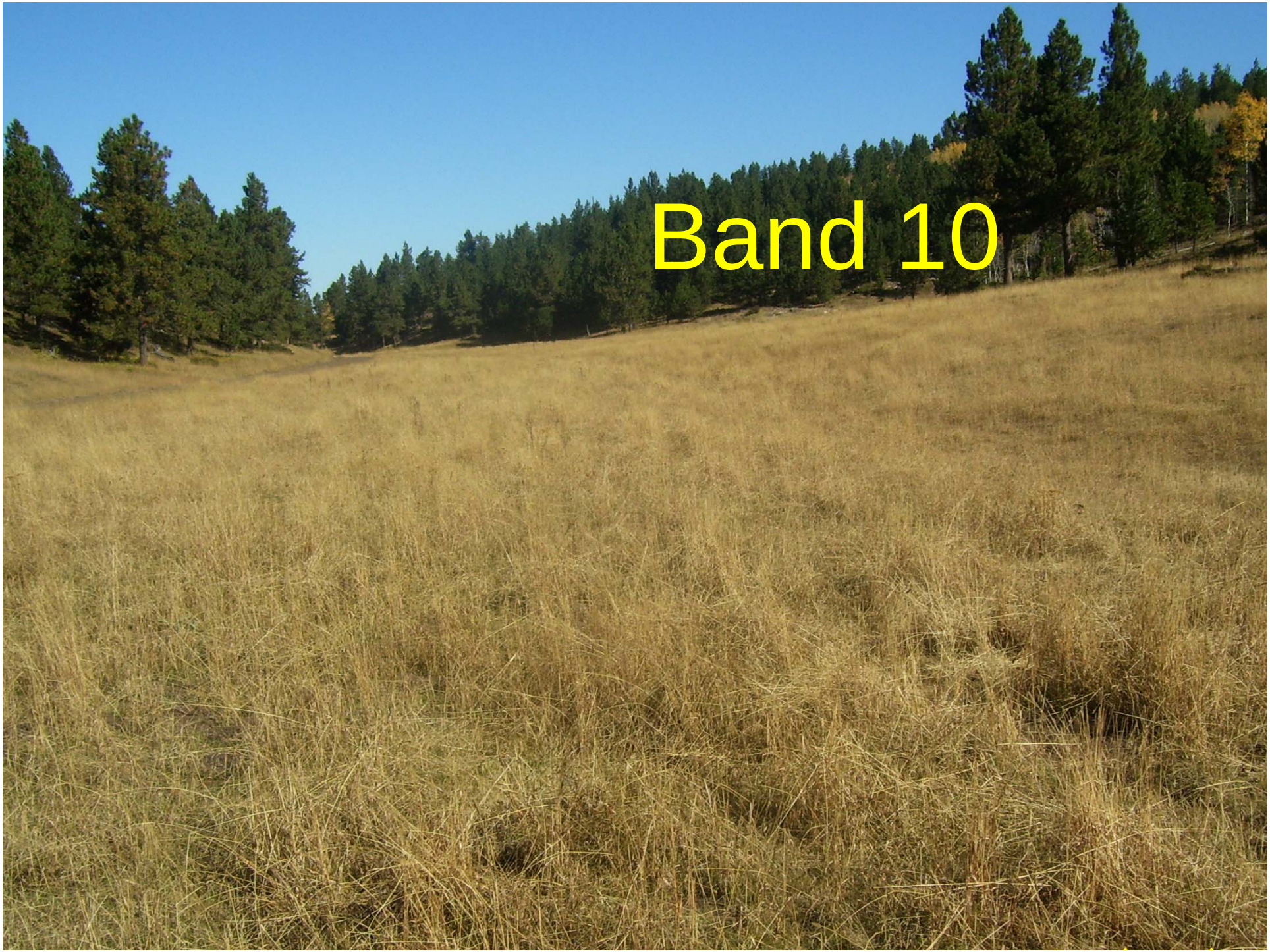
accurate

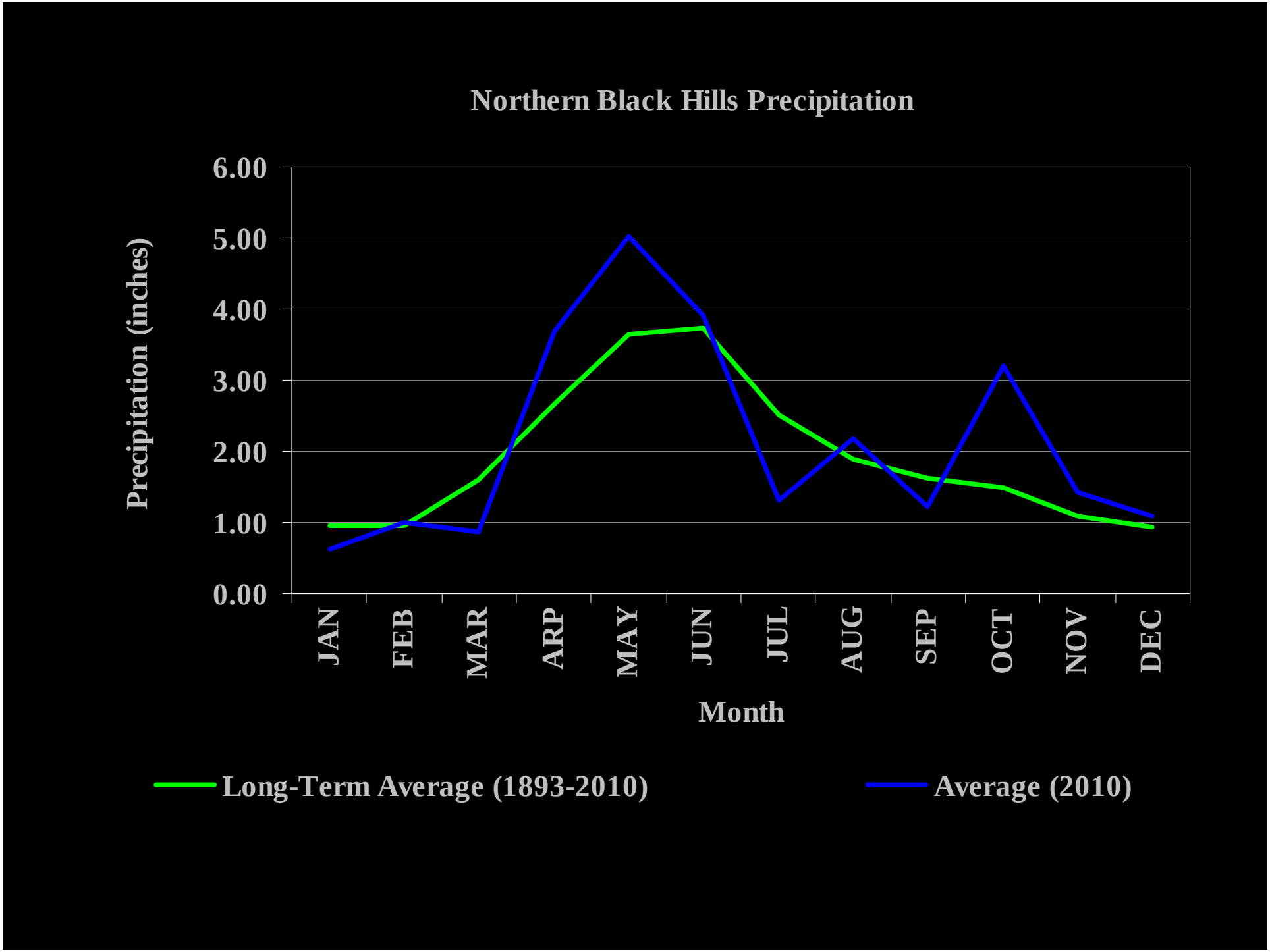

Band 3
Band 5

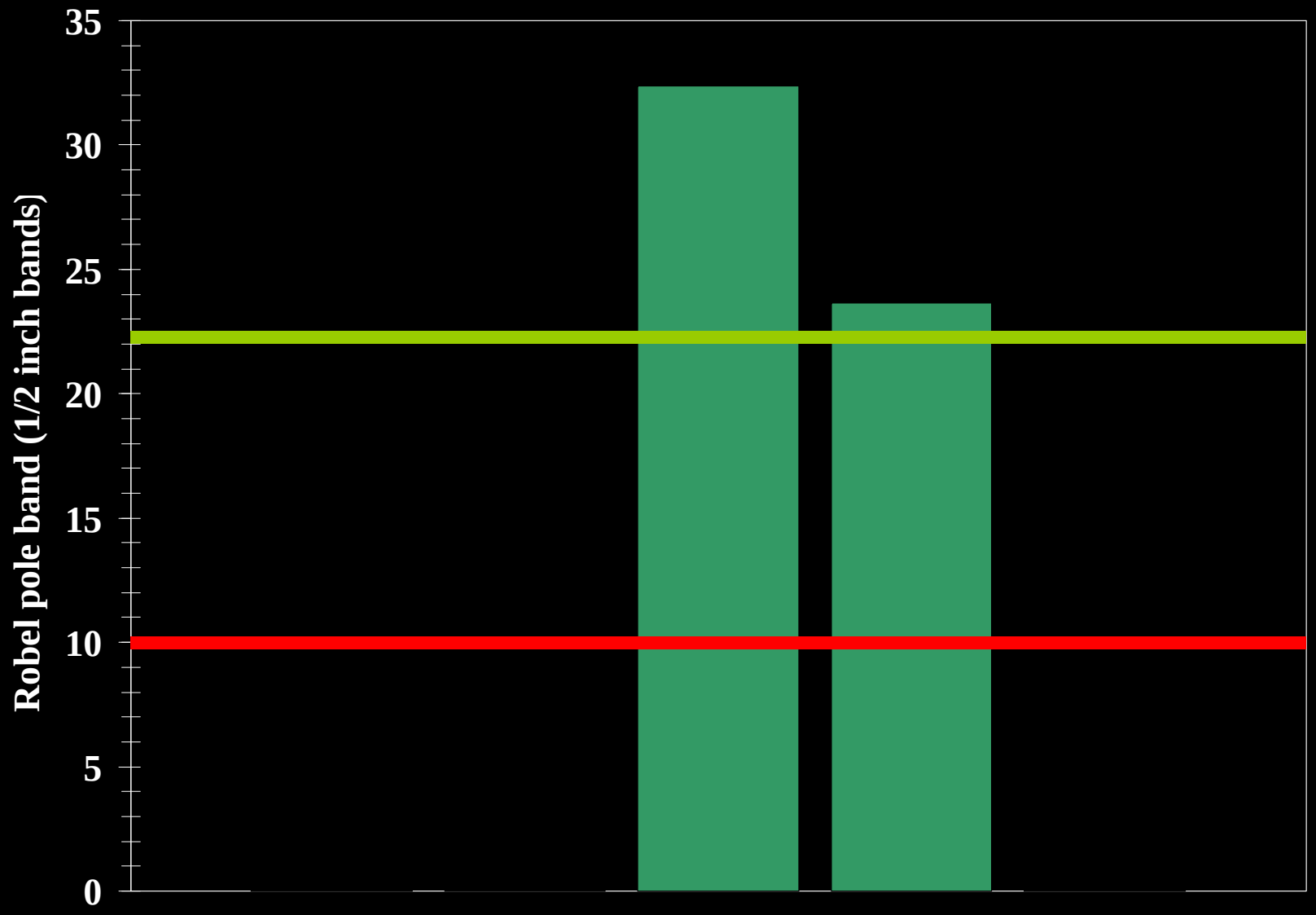

Band 1.9
Measure Residual


Robel pole band (1/2 inch bands)
35
30
25
20
15
10
5
0
Band 22 Average potential herbage
Band 10 residual guideline (60%)

Band 22

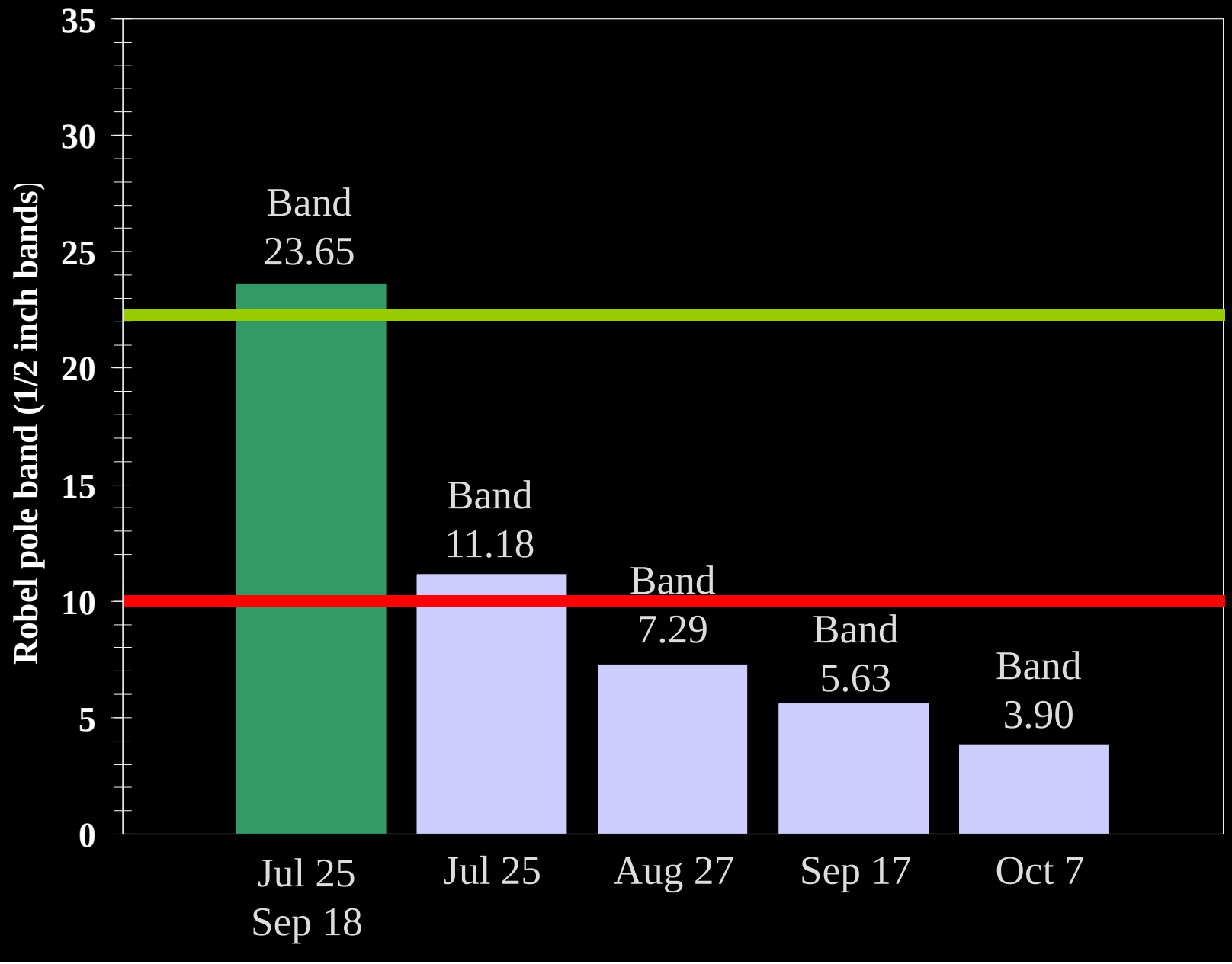

Band 10

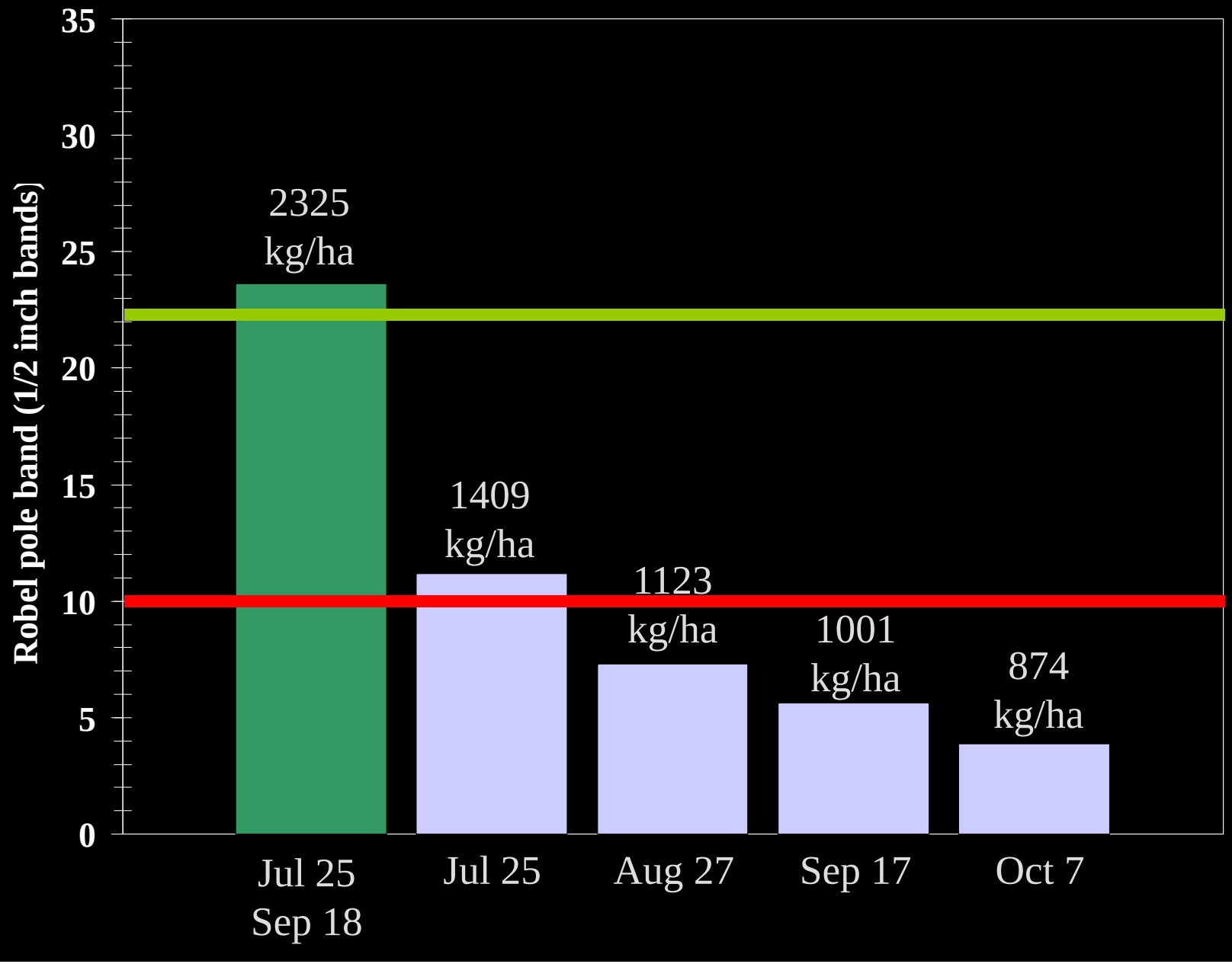

Northern Black Hills Precipitation
Precipitation (inches)
6.00
5.00
4.00
3.00
2.00
1.00
0.00
JAN
FEB
MAR
ARP
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month
Long-Term Average (1893-2010)
Average (2010)

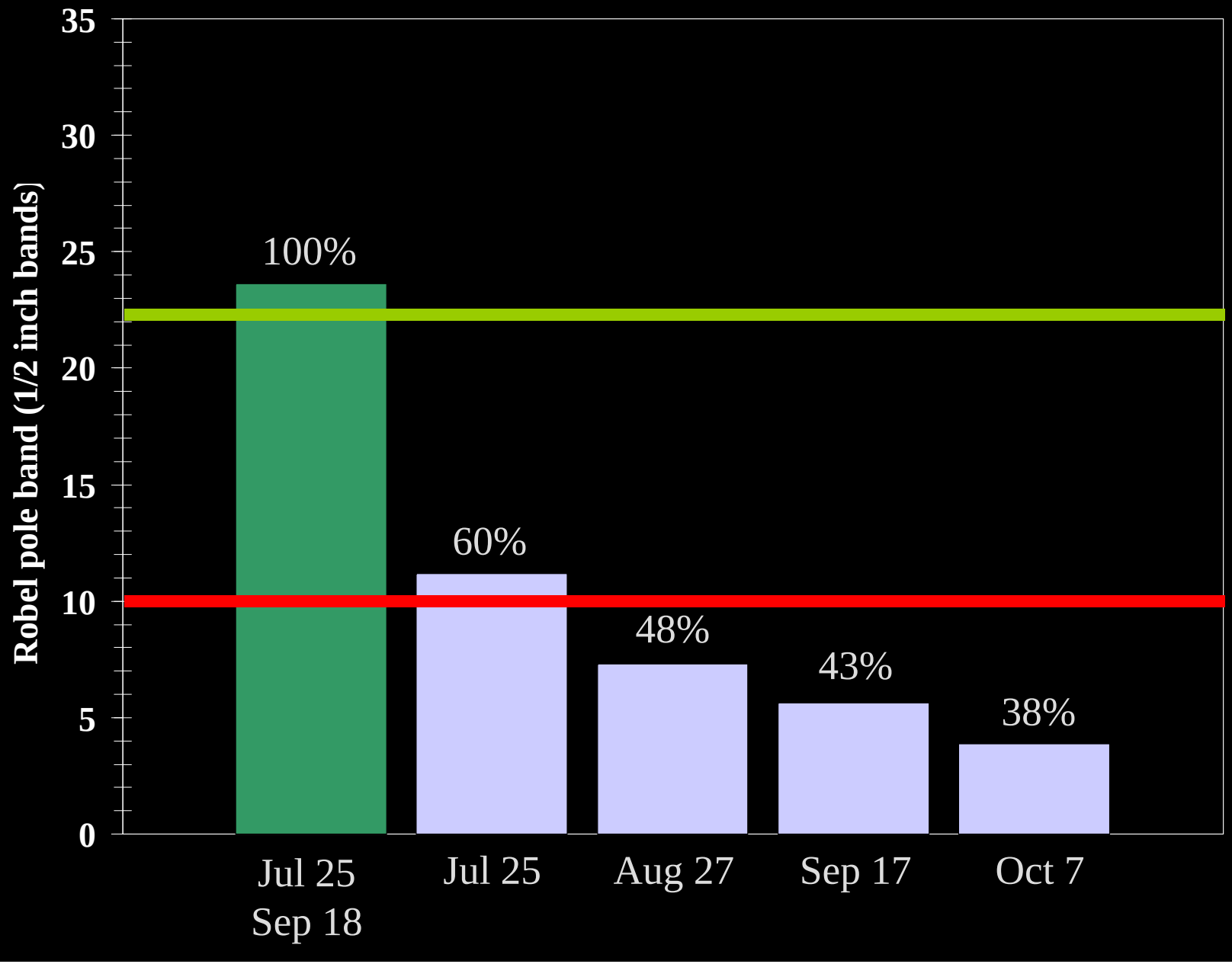

Robel pole band (1/2 inch bands)
35
30
25
20
15
10
5
0

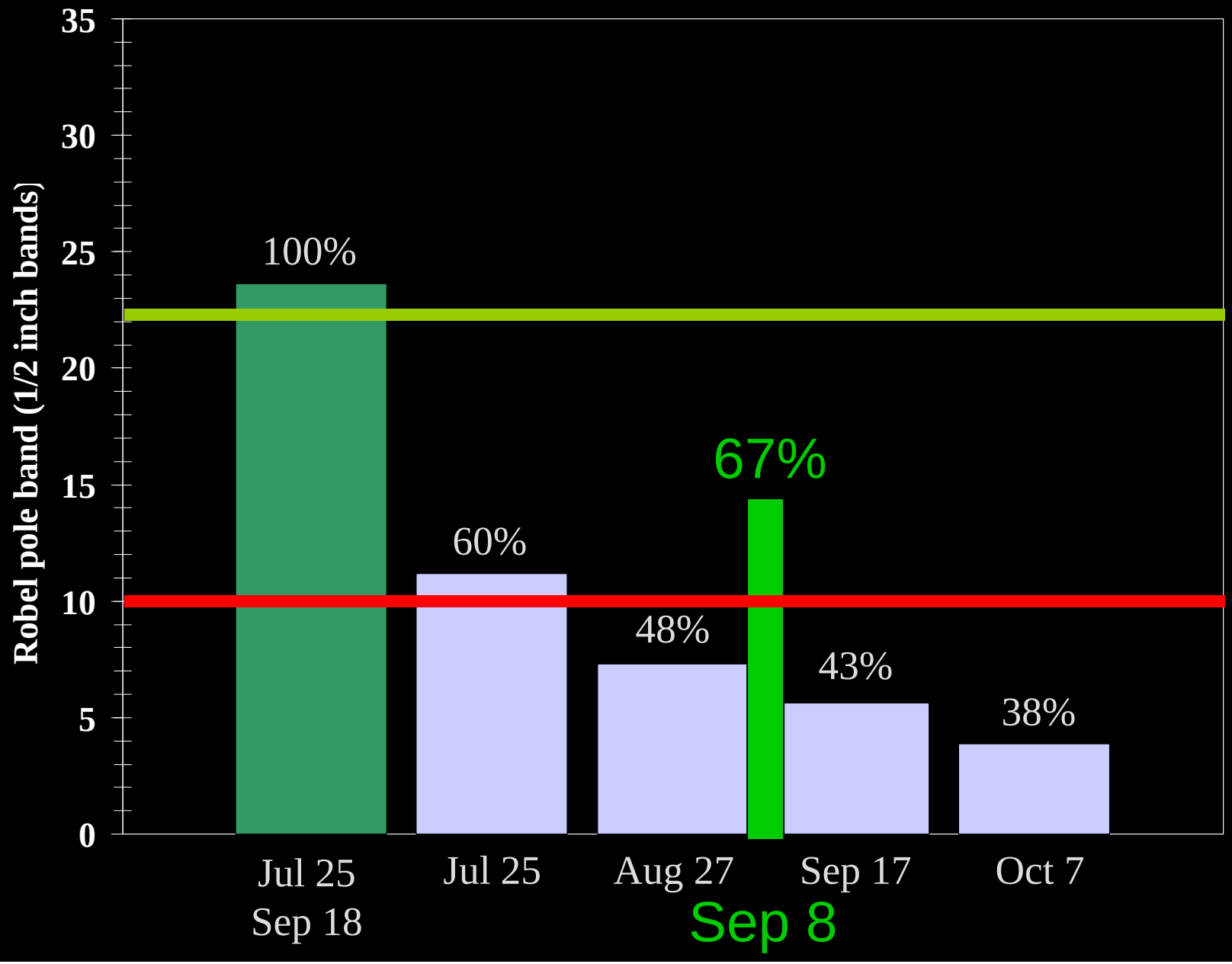
Band 32

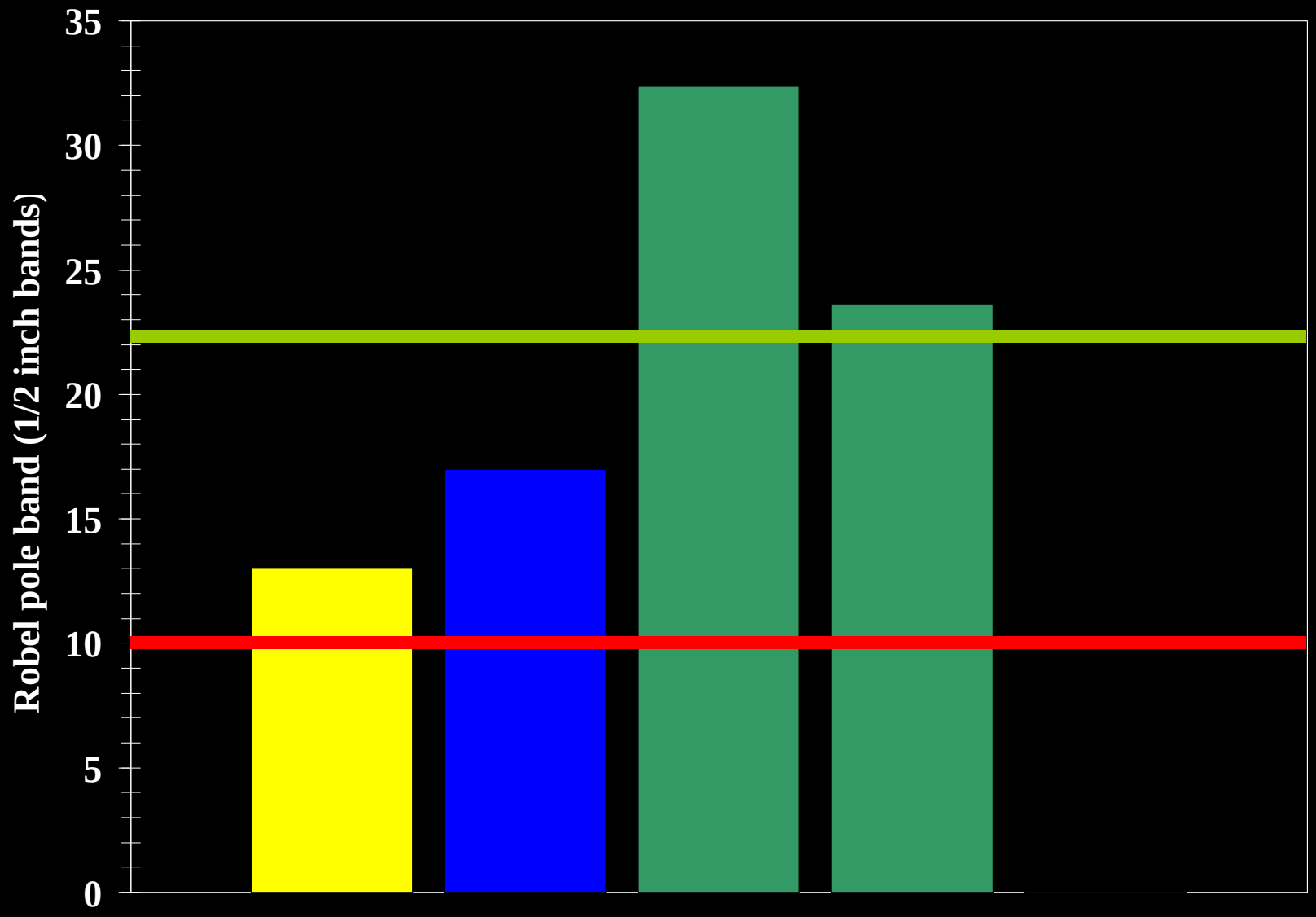
Band 23.65

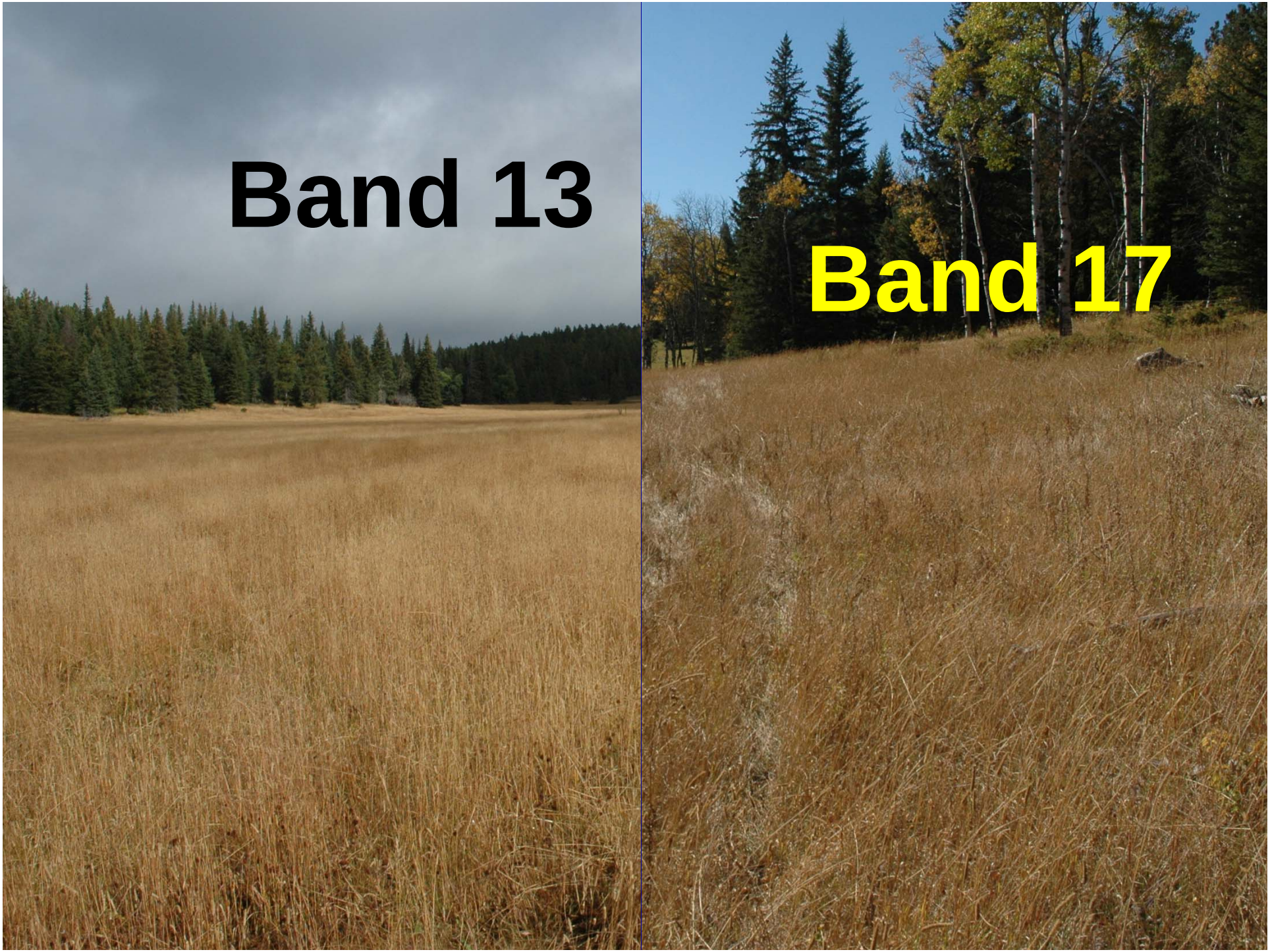

Robel pole band (1/2 inch bands)
35
30
25
20
15
10
5
0
Band
23.65
Band
11.18
Band
7.29
Band
5.63
Band
3.90
Jul 25
Sep 18
Jul 25
Aug 27
Sep 17
Oct 7


Robel pole band (1/2 inch bands)
35
30
25
20
15
10
5
0
2325 kg/ha
1409 kg/ha
1123 kg/ha
1001 kg/ha
874 kg/ha
Jul 25 Sep 18
Jul 25
Aug 27
Sep 17
Oct 7

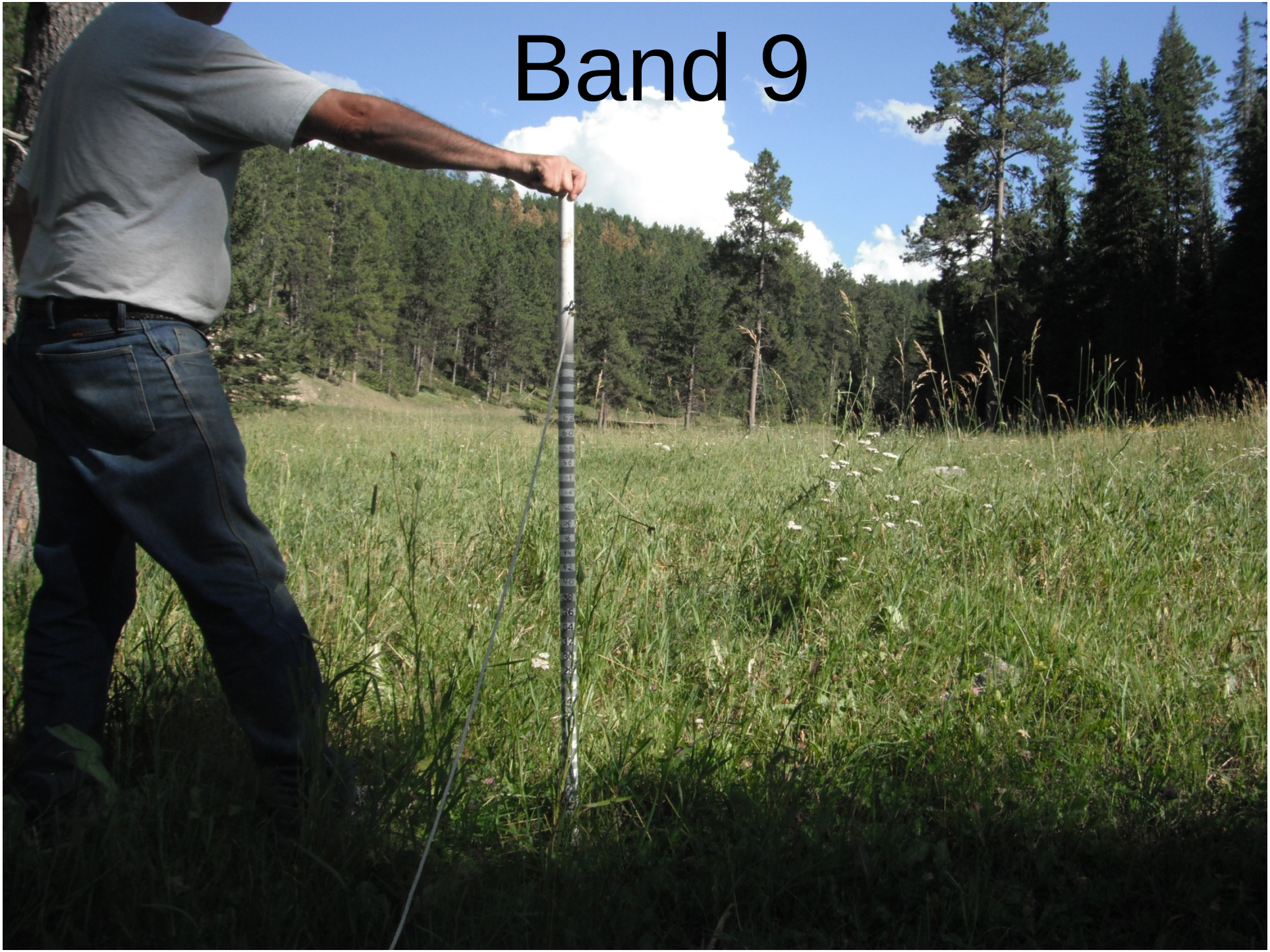

Robel pole band (1/2 inch bands)
35
30
25
20
15
10
5
0
100%
60%
48%
43%
38%
Jul 25
Sep 18
Jul 25
Aug 27
Sep 17
Oct 7


Robel pole band (1/2 inch bands)
35
30
25
20
15
10
5
0
100%
60%
48%
67%
43%
38%
Jul 25
Sep 18
Jul 25
Aug 27
Sep 8
Sep 17
Oct 7

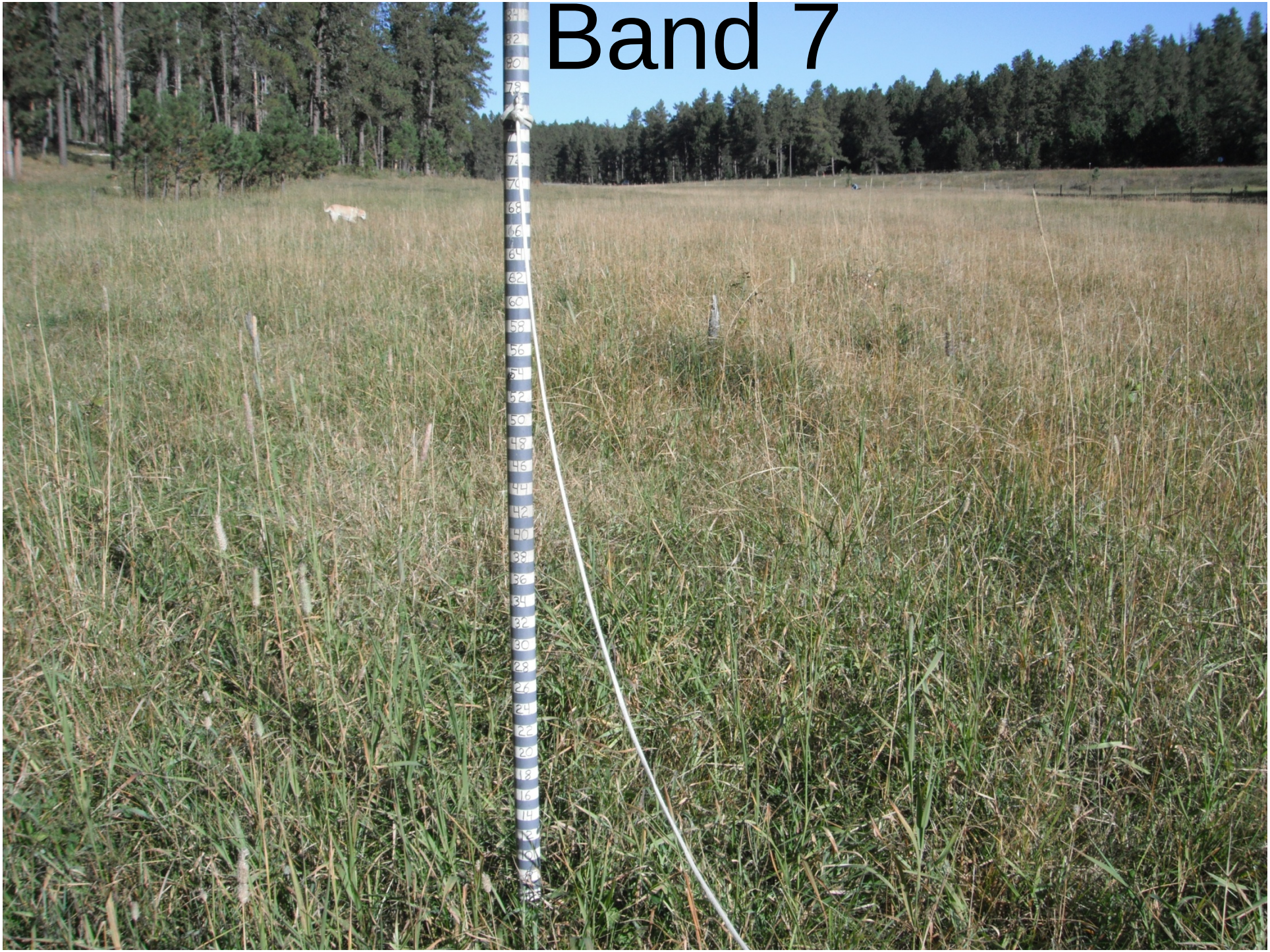

Robel pole band (1/2 inch bands)
35
30
25
20
15
10
5
0


Band 13
Band 17

Band 10

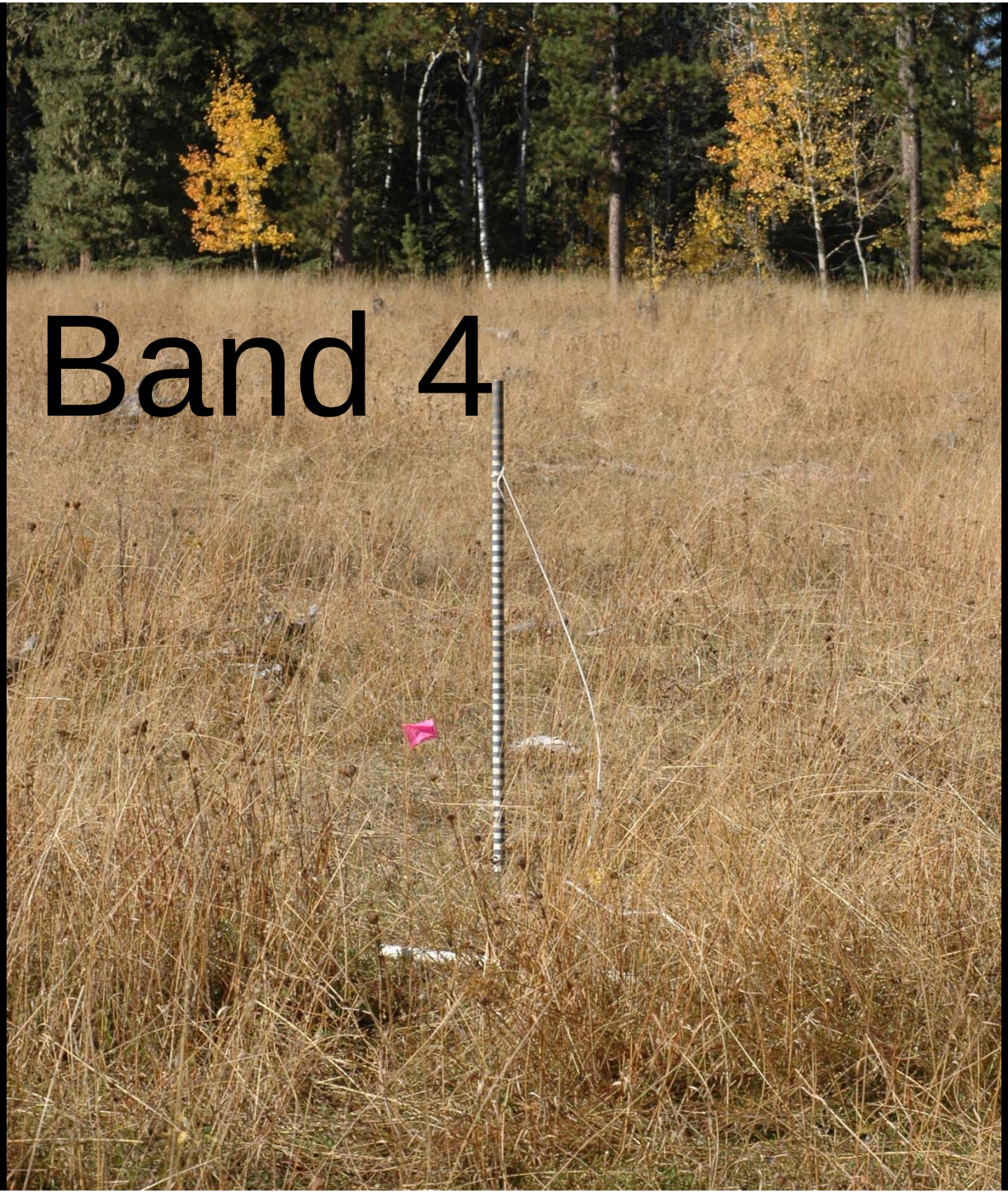

Band 9

Band 8


Band 7

Band 6

Band 5


Band 4

Band 3

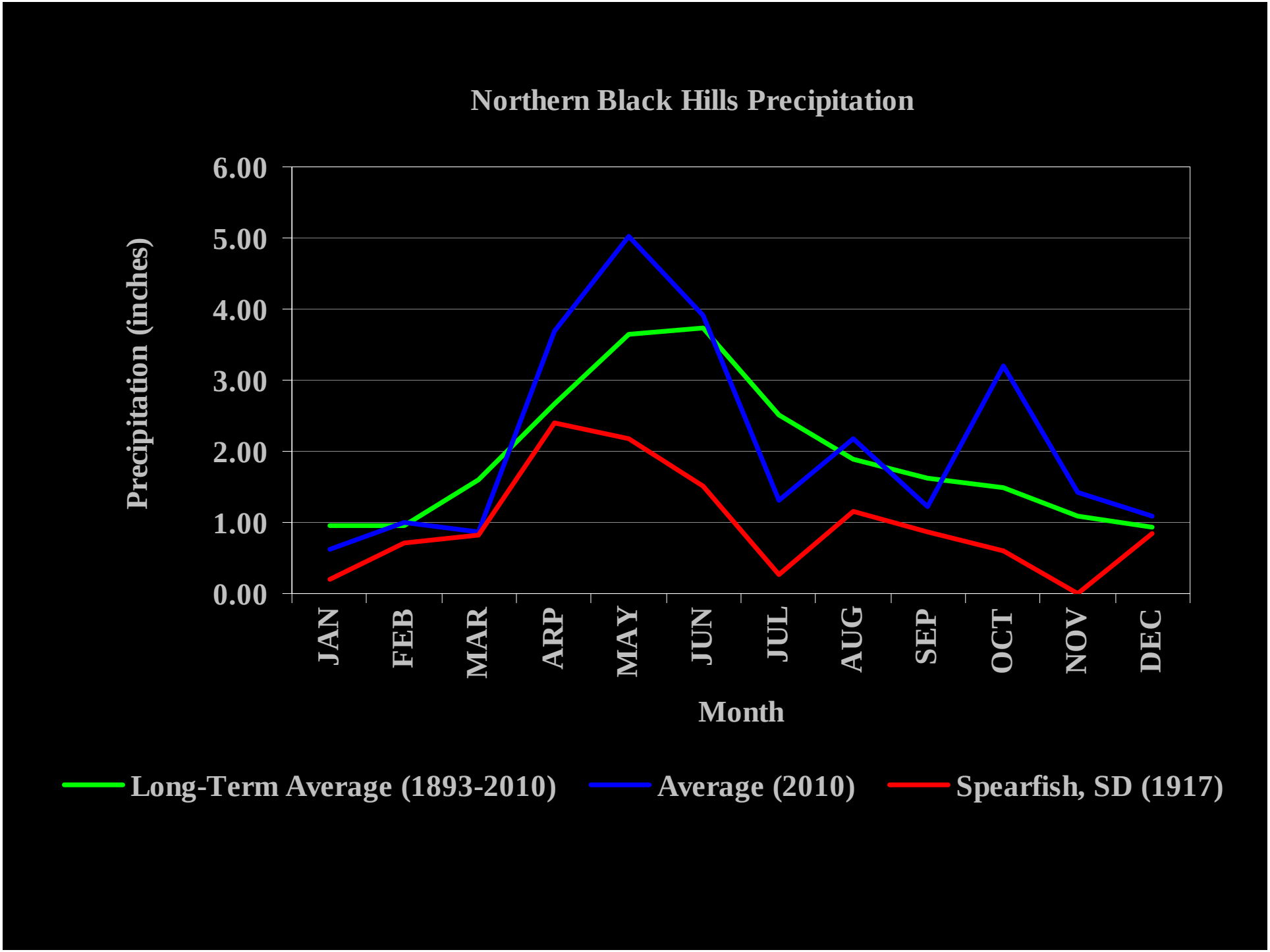
Band 0
Band 1
Band 2

Protect YOUR resources

Estimating Utilization

- USEoma Bin Laden
- Not accurate (underestimate)
- Elusive,a moving target, estimate (difficult to tie down accurately, PPT)
- Measured indirectly; what's gone (part eaten, decomposed, trampled, scattered, soils disturb
- Difficult to compare directly to other research
- Wait for results (if clipped), expensive, no bias
- NO Drought Management, no past use or abuse
- Tiny sample size; sorry this slide is way to wordy

TERRORISTS ARE
LIKE KING SALMON
LIFE IS GOOD UNTIL THE
SEALS SHOW UP

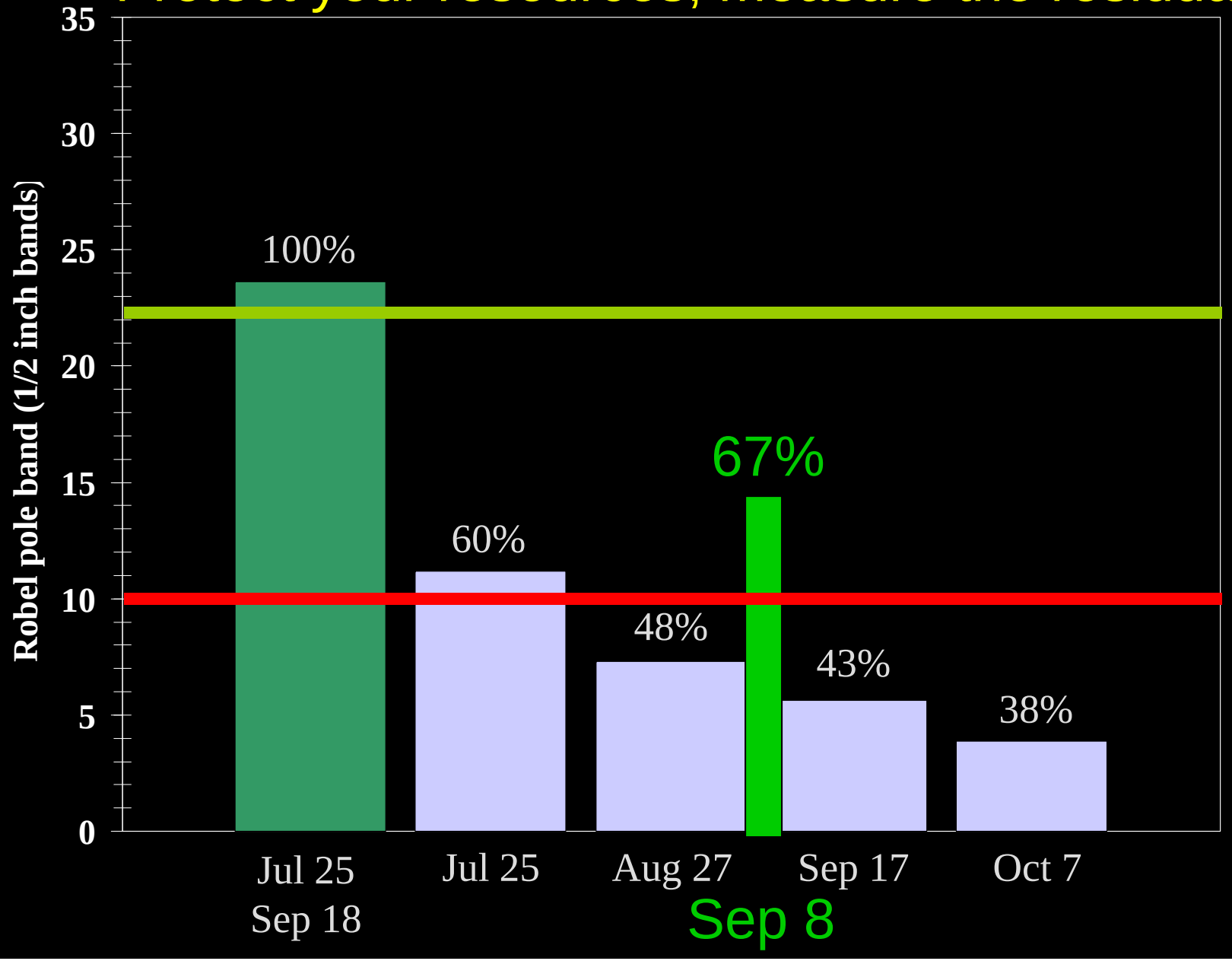

Northern Black Hills Precipitation
Precipitation (inches)
6.00
5.00
4.00
3.00
2.00
1.00
0.00
JAN
FEB
MAR
ARP
MAY
JUN
JUL
AUG
SEP
OCT
NOV
DEC
Month
Long-Term Average (1893-2010)
Average (2010)
Spearfish, SD (1917)

Band 28; 2800 kg/ha
above average year

Band 14, 1600 kg/ha
drought year

Band 4.13
880 kg/ha
780 lbs/a
Band 0.86
210 kg/ha
187 lbs/a

Protect your resources, measure the residual.



Benefits of Residual

(Beetle et al. 1961)

% Utilization	Robel pole
little residual left	50-60% residual left
warmer soils	cooler soils
less soil water	greater soil water
plants mature earlier	plants mature later
lower production	greater production
greater runoff	less runoff
greater raindrop impact	lesser raindrop impact
greater NPS pollutants	less NPS pollutants