

## **Determination of Public Land (Rangeland) Health for 65051 MARLEY- SEC 3**

The Record of Decision (ROD) for the New Mexico Standards for Public Land Health and Guidelines for Livestock Grazing Management (dated January 2001) adopted three Standards for Public Land Health. These are (1) Upland Sites Standard, (2) Biotic Communities, Including Native, Threatened, Endangered, and Special Status Species Standard and (3) Riparian Sites Standard.

The ROD also established a process for the BLM Field Offices for the implementation. Through a public participation process, the Roswell Field Office developed and adopted indicators to use in conjunction with existing monitoring data to assess these standards.

Field assessment worksheets and other available data that evaluate the local indicators were completed for this allotment. While habitat parameters may meet the Biotic standard, the habitat requirements for Special Status Species (lesser prairie chicken and sanddune lizard) habitat are a concern. Factors such as oil and gas activities and the associated infra-structure, the mesquite encroachment in some areas and the low composition of the tall grass species required for nesting success must continue to be addressed to improve the existing habitat and prevent lost of habitat from fragmentation.

Based on the assessments, it is my determination that the public land within the Marley Sec. 3 allotment #65051 meets the Upland Sites Standard and (2) Biotic Communities, including Native, Threatened, Endangered, and Special Status Species Standard. There are no public land Riparian areas on this allotment, therefore this Standard was not addressed.

/s/ T. R. Kreager

Assistant Field Manager

09/28/2005

Date

## Standards of Public Land Health

### Evaluation of 65051 MARLEY- SEC 3 Allotment

[ 12/08/2004 ]

The Roswell Field Office conducted rangeland health assessments at four (4) study sites within the Marley-Sec 3 allotment #65051. The assessments looked at the Soil/Site Stability, Hydrologic Function and Biotic Integrity indicators within the vicinity of each study site. Existing monitoring data was incorporated into and in support of the field assessment. The summary of each assessment is attached and shown in the following table.

Study Area or Assessment Area	UPLAND			BIOTIC			RIPARIAN		
	Meets	Monitor an Indicator	Does Not Meet	Meets	Monitor an Indicator	Does Not Meet	Meets	Monitor an Indicator	Does Not Meet
65051-#1 BIG SAND W-D022 (*)	X	*		X	*		N/A		
65051-#2 BIG SAND E-D023 (*)	X	*		X	*		N/A		
65051-HOMESTEAD-D021	X	*		X	*		N/A		
65051-RED TANK-D024 (*)	X	*		X	*		N/A		

Twenty-two (22) indicators for Rangeland Health were evaluated for public land on Marley - Sec. 3 allotment #65051. Ten (10) of these assessed soil/site stability, 11 hydrologic function and 13 biotic integrity. These qualitative assessments in conjunction with quantitative information from long-term monitoring studies on four range trend study areas were utilized to assess the rangeland health of public land within this allotment. These quantitative evaluations were performed by Roswell Field office staff starting in the early 1980's. These include ground and vegetative cover and composition, production, frequency, and ecological condition as calculated from these collections which have been scheduled approximately every 5 years.

Homestead, Big Sand East and Red Tank pastures were three CP-2 Sand Hills ecological sites evaluated. The soil phase is Roswell-Jalmar fine sands on high hilly terraces in the eastern part of the survey area. Slopes are 0-25 percent with elevations between 3,900 ft/1,182 m to 4,100 ft/1,242 m. Both the Roswell and Jalmar soil is deep and well drained. Homestead pasture with an ecological site encompassing 2,185 acres/885 hectares has currently mule deer (*Odocoileus hemionus*) habitat. Livestock are also

present but at a lower level of authorized use as taken by the allottee. The majority of indicators assessed rate None to Slight and Slight to Moderate. Indicators rating Moderate are pedestals and/or terracettes, bareground, annual production and invasive plants. Most pedestaling is occurring on yucca (*Yucca* spp.) and grasses little bluestem (*Schizachyrium scoparium*), sand bluestem (*Andropogon hallii*) and sand sage (*Artemesia filifolia*). There exists no evidence of terracette formation however. Percentage bareground is currently estimated at 50-60 exceeding the ESD of 35 and approaches the upper end of the range expected and long-term average of 50 percent. Annual production is now estimated at approximately 1/3 of the ESD average for normal years of 1,800 lbs/ac or kg/ha. Some of the production however is comprised of shinnery oak (*Quercus havardii*) and other shrubs. A crop of sunflower (*Helianthus* spp.) is observed and makes up a minor component of the vegetative ground cover. Additional plants show very slight departures from normal ranges of variability and therefore functional/structural groups rate Slight to Moderate. Invasive plants are scattered throughout with mesquite (*Prosopis glandulosa*) and snakeweed (*Gutierrezia sarothrae*). All other indicators rate within normal ranges of variability and pose no immediate concern.

Big Sand East Pasture indicator ratings ranged from None to Slight to Moderate to Extreme. The ecological site for this study area is 2,992 acres/1,211 hectares, but is located adjacent to a drill pad which has not reclaimed as evidenced by the absence of vegetation and abundance of snakeweed and other annual forbs. Livestock are utilizing this pasture but in reduced numbers. Bareground is currently estimated at 60-70% exceeding the long-term average of 58% and the ESD of 35 percent. There is quite an array of decadent sunflower from the previous year momentarily making up the majority of vegetative cover. Wind-scoured blowouts rates Moderate with some windward dunes occasionally void of vegetation. Litter movement also rates Moderate with litter piling up against obstructions and in depressional areas. Functional/structural groups rates Moderate as well. There appears to be more sand sage in parts of the pasture which lies in a transitional zone between sand hills and sandy plains. More decadence is observed here with 20-30 percent of the present vegetation is dead or decadent. Annual production is currently only 40-50 percent of potential with plants such as threeawn, sand and little bluestem comprising the grass production. Yucca, snakeweed and sand sage are the major shrubs on site. A weak physical crust is in place which is only slightly holding sand and soil in place. All other indicators rate None to Slight and Slight to Moderate with varying degrees of variability from the expected range.

Red Tank pasture with an area of 1,809 acres/732 hectares indicates significant departure from normal ranges of variability. Those indicators with soil and hydrologic attributes rating Moderate to Extreme are bareground and wind-scoured blowouts. The percent bareground, now estimated at 70-80 percent exceeds the long-term average by 20-30%. An over-abundance of the previous year's annual sunflower accounting for most of the ground cover has since become decadent and would figure into the litter estimates rather than ground cover.

There does exist a very large pedestal on a single yucca plant which reaches a height of 10 ft/3.3 m. Most active pedestaling is on the windward side of the dunes where blowouts are quite common and surpass what is expected for this site. As a result, pedestals are quite active and rate Moderate with wind-scoured blowouts, almost totally void of vegetation rating Moderate to Extreme. There is some gullying on the two-track leading into the study area with large and undulating sand dunes. Shinnery oak is not as abundant as expected with lesser amounts of little bluestem, sand bluestem and sand sage. Threawn and snakeweed are the major components at present with scattered yucca. Annual production is only estimated at approximately 40% of the potential with key grass species in very limited amounts having a significant effect on reproductive capability of perennial vegetation present. With these parameters being taken into account, functional/structural groups and reproductive capability both rate Moderate. Some physical crusting exists with breaks in continuity. All other indicators display normal range of variability and degree of departure.

Big Sand West pasture, lies on the western portion of the allotment and is the sole Sandy Plains ecological site. The site is 3,786 acres or 1,533 hectares in size on a Faskin-Roswell soil complex occurring on severely wind-blown uplands in the eastern part of the survey area and west of the high plains on 0-15% slopes. Indicators with soil and hydrologic concerns rating Moderate are pedestals and/or terracettes, wind-scoured blowouts and litter movement. Slight active pedestaling occurs in flow paths especially on the little and sand bluestem component, in blowouts on the windward side of the dunes. These wind-scoured blowouts are occasionally present and exhibit limited vegetation. The leeward side however possesses more vegetation and less pedestaling. Litter, mainly shinnery leaves is scattered against obstructions and in depressions distally from the point of origin. Bareground is now estimated at 70-80 percent and rates Moderate to Extreme. This exceeds the upper end of the range expected and long-term average of 45 percent as well. Functional/structural groups rates Moderate as F/S groups are moderately reduced. Little and sand bluestem are the two grasses which are reduced and replaced by shrub components. There appears to be more shinnery oak and sand sage than what the long-term average indicates for composition, frequency and production. Currently 1/4 of the annual production for this site is estimated resulting in a Moderate rating. Little bluestem with a long-term average of 558 lbs/ac or kg/ha, now is estimated only at a fraction of potential and far below the ESD of 450 lbs/ac or kg/ha. A good crop of shinnery acorns/mast is observed with more mesquite and yucca occurring. Mesquite is scattered throughout resulting in a Moderate rating for invasive plants. All other indicators deviate only slightly and exhibit normal ranges of variability.

#### Hydrology-

#1 Big Sand W - The pedestal and/or terracette indicator rated moderate. The recent dry conditions in combination with wind/water erosion has possibly decreased the amount of plant cover and soil infiltration. This may have increased the degree of pedestaling on plants and rocks.

The bareground indicator rated moderate to extreme. The amount of bareground has possibly increased due to recent dry conditions with wind/water erosion processes.

The wind-scoured blowouts, and/or deposition area indicator rated moderate. The decrease in the strength of physical soil crusts and/or absence, wind velocity, surface dryness and roughness and reduced amount of surface plant cover has possibly increased wind-scoured blowouts and deposition areas.

The litter movement indicator rated in the moderate category. The decrease in litter movement suggests that drier weather has negatively affected growing conditions which reducing production and movement.

All other indicators rated none to slight or slight to moderate. Silt, sand and gravel deposits of Quaternary eolian and piedmont outcrop in the area.

#2 Big Sand E - The bareground indicator rated moderate to extreme. The amount of bareground has possibly increased due to recent dry conditions with wind/water erosion processes.

The wind-scoured blowouts and/or depositional area indicator rated moderate. The decrease in the strength of the physical soil crusts and/or absence, wind velocity, surface dryness and roughness and reduced amount of surface plant cover has possibly increased the degree of wind-scoured blowouts and depositional areas.

The litter movement indicator rated in the moderate category. Litter was found against obstructions and within depressions. The decrease in litter movement suggests a lack of precipitation negatively affecting growing conditions reducing it's production and mobility.

All other indicators rated none to slight or slight to moderate. Silt, sand and gravel deposits of Quaternary eolian and piedmont outcrop in the area.

Homestead - The pedestal and/or terracette indicator rated moderate. The recent dry conditions in combination with wind/water erosion has possibly decreased the amount of plant cover and infiltration into the soil which may have increased pedestaling of plants and rocks.

All other indicators rated none to slight or slight to moderate. Silt, sand and gravel deposits of Quaternary eolian and piedmont outcrop in the area.

Red Tank - The pedestal and/or terracette indicator rated as moderate to extreme. The recent dry conditions in combination with wind/water erosion has possibly decreased the amount of plant cover and infiltration into the soil increasing pedestaling of plants and rocks.

The bareground indicator rated moderate to extreme. The amount of bareground has possibly increased due to recent dry conditions or wind/water erosion processes.

The wind-scoured blowouts, and/or depositional area indicator rated moderate to extreme. The decrease in strength of physical soil crusts and/or absence, wind velocity, surface dryness and roughness and reduced amount of surface plant cover has possibly increased wind-scoured blowouts and depositional areas.

All other indicators rated none to slight or slight to moderate. Silt, sand and gravel deposits of Quaternary eolian and piedmont outcrop in the area.

Wildlife - Evaluation of the integrity of biotic community considered several indicators as attribute indices for the area of interest. Biotic indicators are interrelated with several other indicators, including soil/site stability, hydrologic function, and vegetation. Several indicators are singularly biotic and address the vegetative aspect of the ecological site description, such as functional/structural groups and plant mortality & decadence.

In addition to the standard worksheet biotic factors, four specific wildlife indicators and descriptors are included in this evaluation. A unique assemblage of terrestrial species and avifauna can be expected to use the Mescalero Sands ecosystem. Of significance are the sand dune lizard and lesser prairie chicken known only to occur within this ecosystem. The vegetation community of interest is the shinnery oak-tall grass type only found in this portion of the Field Office area. Key habitat components include sand bluestem, shinnery oak, sand dune lizard habitat features (dune blowouts), and lesser prairie chicken habitat features (booming grounds & nesting areas). The amount, condition and juxtaposition of these habitat features are used as habitat indicators for this assessment. The assessment begins by determining if the site is within "Core Area" for lesser prairie chicken and sand dune lizard. Other important wildlife species and their habitats, such as desert mule deer (*Odocoileus hemionus*), pronghorn, a variety of game and non-game species, are also considered in the assessment.

This is an allotment with nine pastures. Study sites have been established in four of those pastures. The entire allotment falls within the LPC and SDL Core Area. This overall evaluation will focus on LPC and SDL habitat with anecdotal commentary regarding the habitat for other wildlife species.

Historical LPC leks have been documented in the north central portion of the allotment within 1.5 miles of U.S. 380. None of the leks have been active for over ten years. Chemical treatments have been applied for brush/shinnery oak control during the period from 1981 to 1990. Aerial surveys were conducted for deer in the vicinity of this allotment from 1993 to 2003. Wildlife population data for most species do not exist for this allotment therefore an assessment as to the status of the various species is not possible at this time.

One historical lek is documented in this Big Sand East pasture along with potential habitat for SDL. An additional five historical leks have been documented in Big Sand

West pasture. A moderate rating is assigned for LPC habitat due to decreased abundance of tall grasses such as sand bluestem, and a corresponding increase in shrubs such as shinnery oak and sand sage. The presence of copious amounts of dead sunflowers and invasion by mesquite and yucca would also lend to the moderate rating. This is reflected in the ratings for Functional/Structural Groups and Annual Production which also received moderate ratings. Blowouts are desirable for SDL habitat; however it is not known if the lizard is colonizing them at present. At this level of assessment, an SDL habitat rating of moderate is appropriate until such time as detailed surveys of the species are conducted. Since SDL population status is unknown at this time a moderate rating is appropriate as well. There are no known historical leks in Homestead and Red Tank Pastures. The foregoing discussion and rating is applicable to these pastures as well.

Mule deer, scaled quail (*Callipepla squamata*), mockingbirds (*Mimus polyglottos*), turkey vultures (*Cathartes aura*), collared lizard (*Crotaphytus collaris*) and jackrabbits (*Lepus californicus*) have been observed in this allotment, as have various passerine birds, other small mammals, and reptilian species. Wildlife observations in this allotment indicate that they reside in it but their population status is unknown. In lieu of information indicating differently a slight to moderate rating has been assigned for their habitats and populations.

In the professional opinion of the Assessment Team, public land within Marley Sec. 3 allotment #65051, meets the Upland and Biotic Standards. There are no Riparian issues within this allotment, therefore this standard was not addressed. See site notes and recommendations for additional information regarding the assessments for the ecological sites within this allotment.

The (\*) indicates that the assessment had one or more indicator(s) rated moderate/extreme or extreme. These indicators are:

- Bare Ground
- Wind-scoured, Blowouts, and/or Deposition Areas

These indicators by themselves are not enough to rate the site as not meeting a standard but may warrant future monitoring.

**Recommendations:** Monitoring at regular intervals should continue on this allotment. Possible brush control may be considered in the future for those areas where invasive plants are encroaching and common throughout. Grazing deferment and reduction in livestock numbers could assist in the sites where the attributes are on the fringe of departure from normal ranges of variability. Prudent livestock management should continue for the allotment to recover especially after the recent dry conditions.

**RFOs Upland and Biotic Standard Assessment Summary Worksheet**

**SITE 65051-#1 BIG SAND W-D022**

Legal Land Desc	NWNE 31 0100S 0300E Meridian 23	Acreage	3786
Ecosite	070BY055NM SANDY PLAINS CP-2	Photo Taken	Y
Watershed	13060007060 MESCALERO		
Observers	NAVARRO/BAGGAO	Observation Date	12/09/2004
County Soil Survey	NM644 CHAVES NORTH	Soil Var/Taxad	
Soil Map Unit	FRB	Soil Taxon Name	FASKIN
Texture Class	NM644 LFS	Soil Phase	FASKIN- ROSWELL
Texture Modifier	NM644 HUMMOCKY		
Observed Avg Annual Precipitation		Observed Avg Growing Season Precipitation	
NOAA Annual Precipitation	11.28	NOAA Growing Season Precipitation	8.54
NOAA Avg Annual Precipitation	13.81	NOAA Avg Growing Season Precipitation	11.69
Disturbances and Animal Use:	Some livestock use and wildlife inhabit the area. Some dune instability but not enough to compromise the site. Some burrowing activity from burrowing animals.		

**Part 2. Attributes and Indicators**

		Departure from Ecological Site Description/Ecological Reference Areas				
Attribute	Indicators	Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
S H	Rills					X
Comments:						
S H	Water Flow Patterns				X	
Comments:						
S H	Pedestals and/or Terracettes			X		
Comments:		Half of the dunal formations are blowouts where pedestals are prominent.				

S H	Bare Ground			X		
Comments:	Estimation is at 60-70% bareground.					
S H	Gullies					X
Comments:						
S	Wind-scoured, Blowouts, and/or Deposition Areas			X		
Comments:	Occasionally present with upwards of approximately 1/2 of the areas especially on the winward aspect void of vegetation and showing signs of blowouts.					
H	Litter Movement			X		
Comments:	Mostly shinnery leaves in scattered concentrations against obstructions.					
S H B	Soil Surface Resistance to Erosion				X	
Comments:	Some reduction in stability.					
S H B	Soil Surface Loss or Degradation				X	
Comments:	Degradation especially in plant interspaces.					
H	Plant Community Composition and Distribution Relative to Infiltration and Runoff				X	
Comments:						
S H B	Compaction Layer					X
Comments:						
B	Functional/Structural Groups			X		
Comments:	Moderate reduction in F/S groups. There is an obvious presence of sand sage.					
B	Plant Mortality/Decadence				X	
Comments:	Between 20-30% of vegetation present is decadent.					
H B	Litter Amount				X	
Comments:	Now estimated at 20-30%.					
B	Annual Production			X		
Comments:	50% of the potential and less in some areas.					
B	Invasive Plants			X		
Comments:	Mesquite is scattered.					
B	Reproductive Capability of Perennial Plants				X	
Comments:	Slightly limited.					

S	Physical/Chemical/Biological Crusts				X	
Comments:	Physical crusts in exposed areas on the winward side, with breaks in continuity.					
B	Wildlife Habitat			X		
Comments:						
B	Wildlife Populations			X		
Comments:						
B	Special Status Species Habitat			X		
Comments:						
B	Special Status Species Populations			X		
Comments:						

**Part 3. Summary**

A. Indicator Summary - Each of the indicators are associated with one or more of the attributes below. An indicator is placed in a category (columns) above and summed for each of the Standard Attributes.

Standard Attribute		Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
S	Soil	0	1	2	4	3
H	Hydrologic	0	1	2	5	3
B	Biotic	0	0	7	5	1

B. Attribute Summary. In this table, the Extreme and Extreme to Moderate columns in the table above are merged for the *Does not Meet* column, Moderate becomes *May Need More Info*, and Slight to Moderate and None to Slight merge to form the *Meets* columns. Values from the table are summarized below. Space is provided for rationale of the determination. This space should most certainly be used when the determination by the ID team conflicts with the summarized values. Provide the sources of information that lead to the determination. X out the appropriate box for each attribute to denote final agreed upon determination by the ID team.

Attribute	Rationale	Does Not Meet	May Need More	Meets
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			Info	
Soil		1	2	7
Hydrologic		1	2	8
Biotic		0	7	6

Site Notes: This site more than others has more shinnery oak and yucca. There is evidence of livestock use but the crop of acorns is abundant indicating a favorable growing season earlier in the year. Little bluestem is grazed to 1/4 to 1/2 of the plants present. Mesquite and sand sage are also in abundance and not necessarily on disturbed sites. Dirt tanks are full and operational. Some annual growth of sunflowers is evident with snakeweed and yucca abundant on the tighter soil leading from the site and on the road. A good mulch layer is apparent with some areas void of vegetation. Mule deer and coyote inhabit the area along with other forms of wildlife. Sand bluestem is also on site in lesser amounts.

**RFOs Upland and Biotic Standard Assessment Summary Worksheet**

**SITE 65051-#2 BIG SAND E-D023**

Legal Land Desc	SENE 12 0110S 0300E Meridian 23	Acreage	2992
Ecosite	070BY061NM SAND HILLS CP-2	Photo Taken	Y
Watershed	13060007060 MESCALERO		
Observers	NAVARRO/BAGGAO	Observation Date	12/08/2004
County Soil Survey	NM666 CHAVES SOUTH	Soil Var/Taxad	
Soil Map Unit	Rn	Soil Taxon Name	ROSWELL
Texture Class	NM666 FS	Soil Phase	ROSWELL- JALMAR
Texture Modifier	NM666 FINE SAND		
Observed Avg Annual Precipitation		Observed Avg Growing Season Precipitation	
NOAA Annual Precipitation	11.28	NOAA Growing Season Precipitation	8.54
NOAA Avg Annual Precipitation	13.81	NOAA Avg Growing Season Precipitation	11.69
Disturbances and Animal Use:	Some livestock are using this pasture. A well site that is now abandoned is just adjacent to the study site. This area now has more bareground than the surroundings.		

**Part 2. Attributes and Indicators**

		Departure from Ecological Site Description/Ecological Reference Areas				
Attribute	Indicators	Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
S H	Rills					X
Comments:						
S H	Water Flow Patterns				X	
Comments:						
S H	Pedestals and/or Terracettes				X	

Comments:	Some evidence of pedestaling present.					
S H	Bare Ground		X			
Comments:	The current estimation at 60-70% approaches and in some areas exceeds upper end of range expected.					
S H	Gullies					X
Comments:						
S	Wind-scoured, Blowouts, and/or Deposition Areas			X		
Comments:	Occasionally present.					
H	Litter Movement			X		
Comments:	Against obstructions and depressions.					
S H B	Soil Surface Resistance to Erosion				X	
Comments:						
S H B	Soil Surface Loss or Degradation				X	
Comments:						
H	Plant Community Composition and Distribution Relative to Infiltration and Runoff					X
Comments:						
S H B	Compaction Layer					X
Comments:						
B	Functional/Structural Groups			X		
Comments:	Number of species reduced. More sand sage and very small amounts of shinnery.					
B	Plant Mortality/Decadence				X	
Comments:	Dead grass clumps evident.					
H B	Litter Amount				X	
Comments:	Now estimated at 30%.					
B	Annual Production			X		
Comments:	Only 1/2 of potential is observed.					
B	Invasive Plants				X	
Comments:	Yucca is less than scattered in some areas.					
B	Reproductive Capability of Perennial Plants				X	

Comments:	Only slight limitations exist.					
S	Physical/Chemical/Biological Crusts				X	
Comments:	Physical crusts evident.					
B	Wildlife Habitat			X		
Comments:						
B	Wildlife Populations			X		
Comments:						
B	Special Status Species Habitat			X		
Comments:						
B	Special Status Species Populations			X		
Comments:						

### Part 3. Summary

A. Indicator Summary - Each of the indicators are associated with one or more of the attributes below. An indicator is placed in a category (columns) above and summed for each of the Standard Attributes.

Standard Attribute		Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
S	Soil	0	1	1	5	3
H	Hydrologic	0	1	1	5	4
B	Biotic	0	0	6	6	1

B. Attribute Summary. In this table, the Extreme and Extreme to Moderate columns in the table above are merged for the *Does not Meet* column, Moderate becomes *May Need More Info*, and Slight to Moderate and None to Slight merge to form the *Meets* columns. Values from the table are summarized below. Space is provided for rationale of the determination. This space should most certainly be used when the determination by the ID team conflicts with the summarized values. Provide the sources of information that lead to the determination. X out the appropriate box for each attribute to denote final agreed upon determination by the ID team.

Attribute	Rationale	Does Not Meet	May Need More	Meets

			Info	
Soil		1	1	8
Hydrologic		1	1	9
Biotic		0	6	7

Site Notes: There is evidence of livestock use with grazing occurring on little and sand bluestem. A drill pad is just adjacent to the site with snakeweed and other weeds making up the biomass there. There does not appear to be very good reclamation on the well site. This ecological site has more decadence and increased dune instability. Blow-outs are evident . Annuals like sunflower dominate the site, otherwise the ground cover is primarily bare soil. Sand sage dominates the bottoms and depressional areas. This site appears to be resting on a transition zone between a deep sandy and sandy plains area.

**RFOs Upland and Biotic Standard Assessment Summary Worksheet**

**SITE 65051-HOMESTEAD-D021**

Legal Land Desc	SESW 25 0100S 0300E Meridian 23	Acreage	2185
Ecosite	070BY061NM SAND HILLS CP-2	Photo Taken	Y
Watershed	13060007060 MESCALERO		
Observers	NAVARRO/BAGGAO	Observation Date	12/16/2004
County Soil Survey	NM644 CHAVES NORTH	Soil Var/Taxad	
Soil Map Unit	RPD	Soil Taxon Name	ROSWELL
Texture Class	NM644 FS	Soil Phase	ROSWELL-JALMAR
Texture Modifier	NM644 FINE SANDS,HILLY		
Observed Avg Annual Precipitation		Observed Avg Growing Season Precipitation	
NOAA Annual Precipitation	11.28	NOAA Growing Season Precipitation	8.54
NOAA Avg Annual Precipitation	13.81	NOAA Avg Growing Season Precipitation	11.69
Disturbances and Animal Use:	Livestock are using this pasture. Mule deer, burrowing rodents and lagomorphs are present. A water pipeline transverses the pasture and supplies water to the northern end of this site		

**Part 2. Attributes and Indicators**

		Departure from Ecological Site Description/Ecological Reference Areas				
Attribute	Indicators	Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
S H	Rills					X
Comments:						
S H	Water Flow Patterns				X	
Comments:						
S H	Pedestals and/or Terracettes			X		

Comments:	Slight active pedestaling.					
S H	Bare Ground				X	
Comments:	Now estimated at 70-80%.					
S H	Gullies					X
Comments:	Uncommon.					
S	Wind-scoured, Blowouts, and/or Deposition Areas				X	
Comments:	A few dunes show some blowouts but very infrequent.					
H	Litter Movement				X	
Comments:						
S H B	Soil Surface Resistance to Erosion				X	
Comments:						
S H B	Soil Surface Loss or Degradation				X	
Comments:						
H	Plant Community Composition and Distribution Relative to Infiltration and Runoff					X
Comments:						
S H B	Compaction Layer					X
Comments:						
B	Functional/Structural Groups			X		
Comments:	Some groups are missing.					
B	Plant Mortality/Decadence					X
Comments:						
H B	Litter Amount				X	
Comments:						
B	Annual Production			X		
Comments:	40-60% of potential is the current estimate.					
B	Invasive Plants			X		
Comments:	Mesquite and snakeweed scattered.					
B	Reproductive Capability of Perennial Plants					X
Comments:						
S	Physical/Chemical/Biological				X	

	Crusts					
Comments:	Physical crusts evident.					
B	Wildlife Habitat				X	
Comments:						
B	Wildlife Populations				X	
Comments:						
B	Special Status Species Habitat			X		
Comments:						
B	Special Status Species Populations			X		
Comments:						

### Part 3. Summary

A. Indicator Summary - Each of the indicators are associated with one or more of the attributes below. An indicator is placed in a category (columns) above and summed for each of the Standard Attributes.

Standard Attribute		Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
S	Soil	0	0	1	6	3
H	Hydrologic	0	0	1	6	4
B	Biotic	0	0	5	5	3

B. Attribute Summary. In this table, the Extreme and Extreme to Moderate columns in the table above are merged for the *Does not Meet* column, Moderate becomes *May Need More Info*, and Slight to Moderate and None to Slight merge to form the *Meets* columns. Values from the table are summarized below. Space is provided for rationale of the determination. This space should most certainly be used when the determination by the ID team conflicts with the summarized values. Provide the sources of information that lead to the determination. X out the appropriate box for each attribute to denote final agreed upon determination by the ID team.

Attribute	Rationale	Does Not Meet	May Need More Info	Meets
Soil		0	1	9

Hydrologic		0	1	10
Biotic		0	5	8
Site Notes:				

**RFOs Upland and Biotic Standard Assessment Summary Worksheet**

**SITE 65051-RED TANK-D024**

Legal Land Desc	SESW 18 0110S 0310E Meridian 23	Acreage	1809
Ecosite	070BY061NM SAND HILLS CP-2	Photo Taken	Y
Watershed	13060007060 MESCALERO		
Observers	NAVARRO/BAGGAO	Observation Date	12/08/2004
County Soil Survey	NM666 CHAVES SOUTH	Soil Var/Taxad	
Soil Map Unit	Rn	Soil Taxon Name	ROSWELL
Texture Class	NM666 FS	Soil Phase	ROSWELL- JALMAR
Texture Modifier	NM666 FINE SAND		
Observed Avg Annual Precipitation		Observed Avg Growing Season Precipitation	
NOAA Annual Precipitation	11.28	NOAA Growing Season Precipitation	8.54
NOAA Avg Annual Precipitation	13.81	NOAA Avg Growing Season Precipitation	11.69
Disturbances and Animal Use:			

**Part 2. Attributes and Indicators**

		Departure from Ecological Site Description/Ecological Reference Areas				
Attribute	Indicators	Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
S H	Rills					X
Comments:						
S H	Water Flow Patterns				X	
Comments:						
S H	Pedestals and/or Terracettes			X		
Comments:	There was an area where a pedestaled plant was 3 to 4 meters high with exposed roots and stems. This yucca plant however appears to be an anomaly, as other plants were elevated but not as severe. Pedestaling is active					

	though especially on the exposed winward side of the dunes and flow paths. No terracettes are present however.					
S H	Bare Ground		X			
Comments:	Current estimations are approximately 70-80%.					
S H	Gullies					X
Comments:						
S	Wind-scoured, Blowouts, and/or Deposition Areas		X			
Comments:	Blow-outs are common here and make up more than 1/2 of the dunes. Vegetation is missing in areas where it was abundant before.					
H	Litter Movement				X	
Comments:	Some displacement. Winward side of dunes shows evidence of movement.					
S H B	Soil Surface Resistance to Erosion				X	
Comments:	Stabilizing agents below expected.					
S H B	Soil Surface Loss or Degradation				X	
Comments:						
H	Plant Community Composition and Distribution Relative to Infiltration and Runoff					X
Comments:	Although the plant community is compromised, the sandy and deep nature of the soil continues to allow infiltration.					
S H B	Compaction Layer					X
Comments:						
B	Functional/Structural Groups			X		
Comments:						
B	Plant Mortality/Decadence					X
Comments:						
H B	Litter Amount				X	
Comments:						
B	Annual Production			X		
Comments:	The current annual production estimation is only 40-50% of potential.					
B	Invasive Plants			X		
Comments:	Mesquite is scattered sporadically					
B	Reproductive Capability of			X		

	Perennial Plants					
Comments:	Limited amount of key grass species.					
S	Physical/Chemical/Biological Crusts				X	
Comments:	Some physical crusting is occurring but with large breaks in continuity.					
B	Wildlife Habitat				X	
Comments:						
B	Wildlife Populations				X	
Comments:						
B	Special Status Species Habitat			X		
Comments:						
B	Special Status Species Populations			X		
Comments:						

**Part 3. Summary**

A. Indicator Summary - Each of the indicators are associated with one or more of the attributes below. An indicator is placed in a category (columns) above and summed for each of the Standard Attributes.

Standard Attribute		Extreme	Moderate to Extreme	Moderate	Slight to Moderate	None to Slight
S	Soil	0	2	1	4	3
H	Hydrologic	0	1	1	5	4
B	Biotic	0	0	6	5	2

B. Attribute Summary. In this table, the Extreme and Extreme to Moderate columns in the table above are merged for the *Does not Meet* column, Moderate becomes *May Need More Info*, and Slight to Moderate and None to Slight merge to form the *Meets* columns. Values from the table are summarized below. Space is provided for rationale of the determination. This space should most certainly be used when the determination by the ID team conflicts with the summarized values. Provide the sources of information that lead to the determination. X out the appropriate box for each attribute to denote final agreed upon determination by the ID team.

Attribute	Rationale	Does Not Meet	May Need	Meets
-----------	-----------	---------------	----------	-------

			More Info	
Soil		2	1	7
Hydrologic		1	1	9
Biotic		0	6	7
<p>Site Notes: This is the only private study site on the allotment. Livestock and deer utilize this pasture. Annual forbs in the form of sunflower dominate this pasture. The wind-scoured blowouts are on the windward side and not as evident on the leeward side of the dunes. Very little shinnery oak can be seen at the immediate vicinity of the site although the far reaches do have some plants. The missing shinnery component may be due to past vegetative treatment. Snakeweed is growing next to the two-track and sides of the road. Scattered pockets of sand bluestem can be seen with some areas showing indication of active pedestaling taking place.</p>				

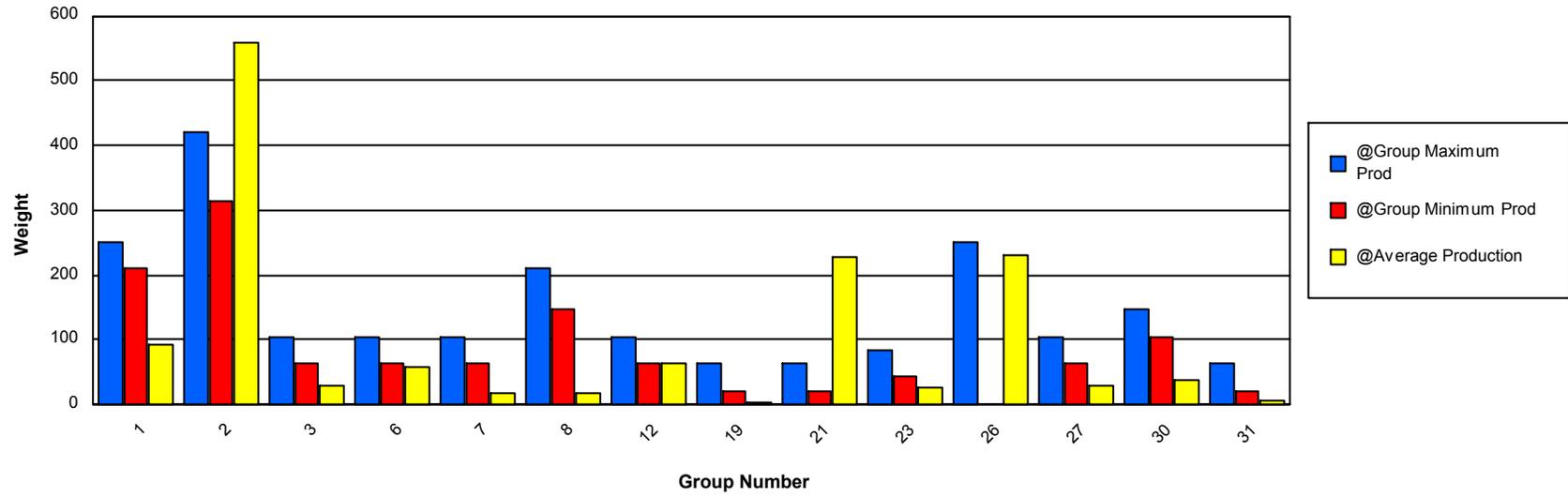
# Functional / Structural Groups

## Report Parameters

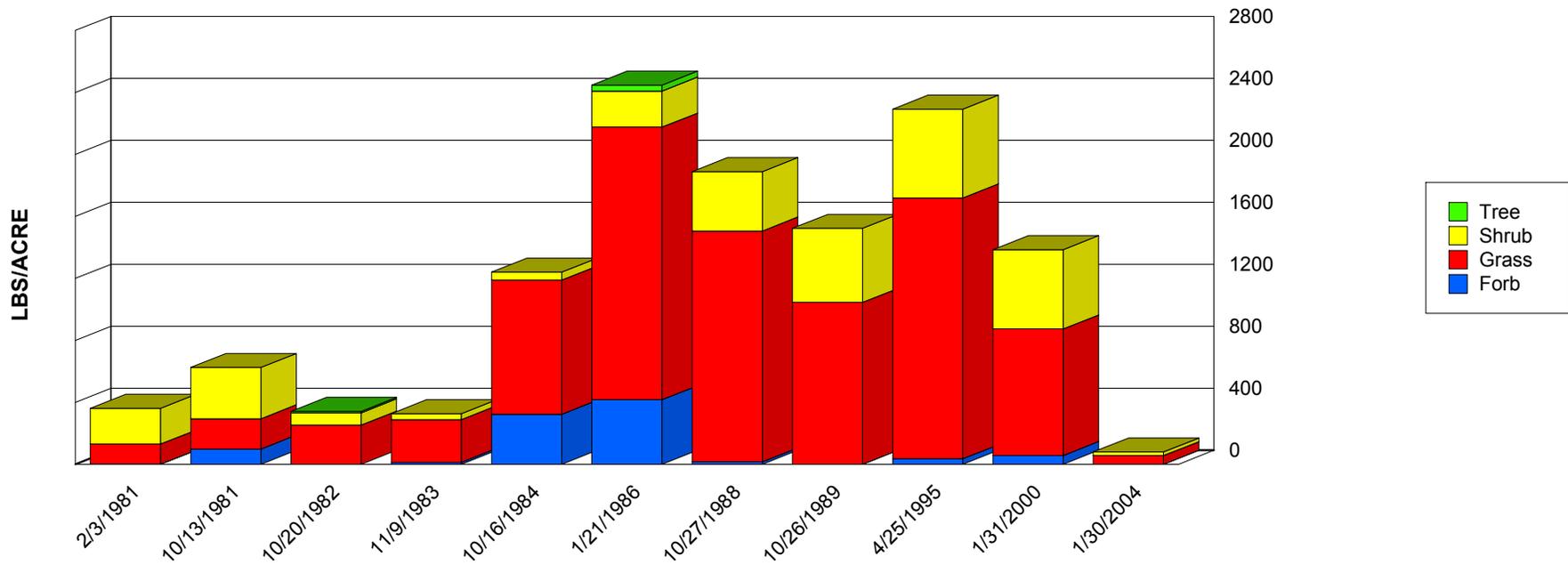
SITE NAME LIKE 65051-#1 BIG SAND W-D022  
 ON/AFTER 10/01/1980  
 ON/BEFORE 09/30/2005  
 MIN LBS TO GRAPH 1  
 SELECTED ECOSITE 070BY055NM

Group	Plant Type	Species	Low Wt Allowed	High Wt Allowed	Minimum	Maximum	Average	STDEV
1	Grass	ANHA	210	252	0.00	388.00	93.25	119.30
2	Grass	ANSC2	315	420	38.63	1,468.80	558.77	502.59
3	Grass	EROX	63	105	1.86	6.80	4.47	1.83
3	Grass	PASPA2	63	105	0.00	31.80	6.68	11.63
3	Grass	PAST6	63	105	0.00	59.00	16.90	18.69
6	Grass	ARIST	63	105	0.00	128.80	58.78	35.45
7	Grass	LECO	63	105	1.54	47.58	16.54	13.67
8	Grass	SPCR	147	210	0.00	47.12	16.74	18.23
12	Grass	SPCO4	63	105	4.67	114.80	62.70	45.16
19	Grass	SPGI	21	63	1.20	2.00	1.60	0.40
21	Forb	ERIOG	21	63	14.67	20.00	17.33	2.67
21	Forb	HEAN3	21	63	94.08	272.80	211.17	82.84
23	Forb	AFF	42	84	0.00	110.00	25.30	33.52
26	Shrub	QUHA3	0	252	0.00	490.00	230.78	173.26
27	Shrub	YUCCA	63	105	0.00	24.00	4.56	8.78
27	Tree	YUEL	63	105	9.40	38.00	23.70	14.30
30	Shrub	ARFI2	105	147	0.00	87.43	37.00	30.50
31	Shrub	CHRY9	21	63	0.00	9.07	4.53	4.53

Group Plant Type Species Low Wt Allowed High Wt Allowed Minimum Maximum Average STDEV



# Production Lbs/Acre Trends

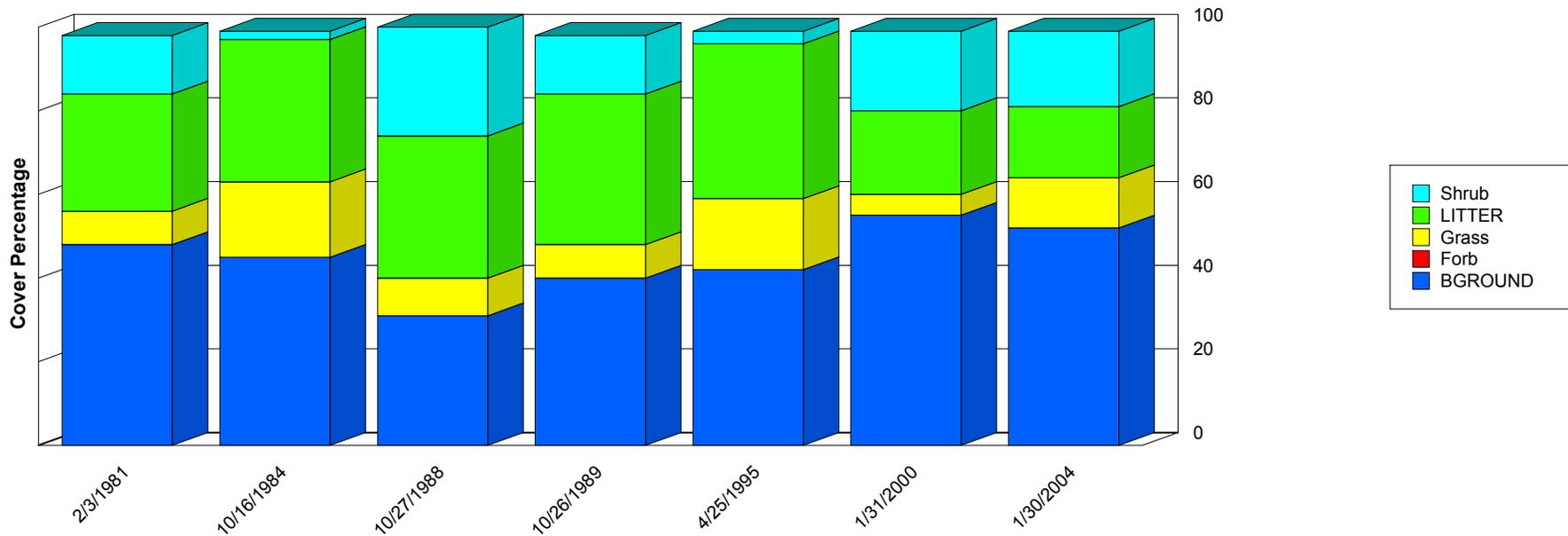


	2/3/1981	10/13/1981	10/20/1982	11/9/1983	10/16/1984	1/21/1986	10/27/1988	10/26/1989	4/25/1995	1/31/2000	1/30/2004
Forb	1.12	99.34	0.00	13.20	323.25	416.96	15.60	0.00	36.00	56.67	0.45
Grass	129.78	194.94	252.94	275.82	865.93	1,759.02	1,489.36	1,044.85	1,683.00	816.63	55.35
Shrub	230.65	330.84	79.38	37.80	50.74	233.10	384.00	478.03	573.00	512.37	23.84
Tree	0.00	0.00	9.40	0.00	0.00	38.00	0.00	0.00	0.00	0.00	0.00
Total	361.55	625.12	341.72	326.82	1,239.92	2,447.08	1,888.96	1,522.89	2,292.00	1,385.67	79.64

## Report Parameters

SITE NAME LIKE 65051-#1 BIG SAND W-D022  
 ON/AFTER 10/01/1980  
 ON/BEFORE 09/30/2005

# Ground Cover Trends



	2/3/1981	10/16/1984	10/27/1988	10/26/1989	4/25/1995	1/31/2000	1/30/2004
BGROUND	48.00	45.00	31.00	40.00	42.00	55.00	52.00
Forb	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grass	8.00	18.00	9.00	8.00	17.00	5.00	12.00
LITTER	28.00	34.00	34.00	36.00	37.00	20.00	17.00
Shrub	14.00	2.00	26.00	14.00	3.00	19.00	18.00
Total	98.00	99.00	100.00	98.00	99.00	99.00	99.00

## Report Parameters

SITE NAME LIKE	65051-#1 BIG SAND W-D022
ON/AFTER	10/01/1980
ON/BEFORE	09/30/2005

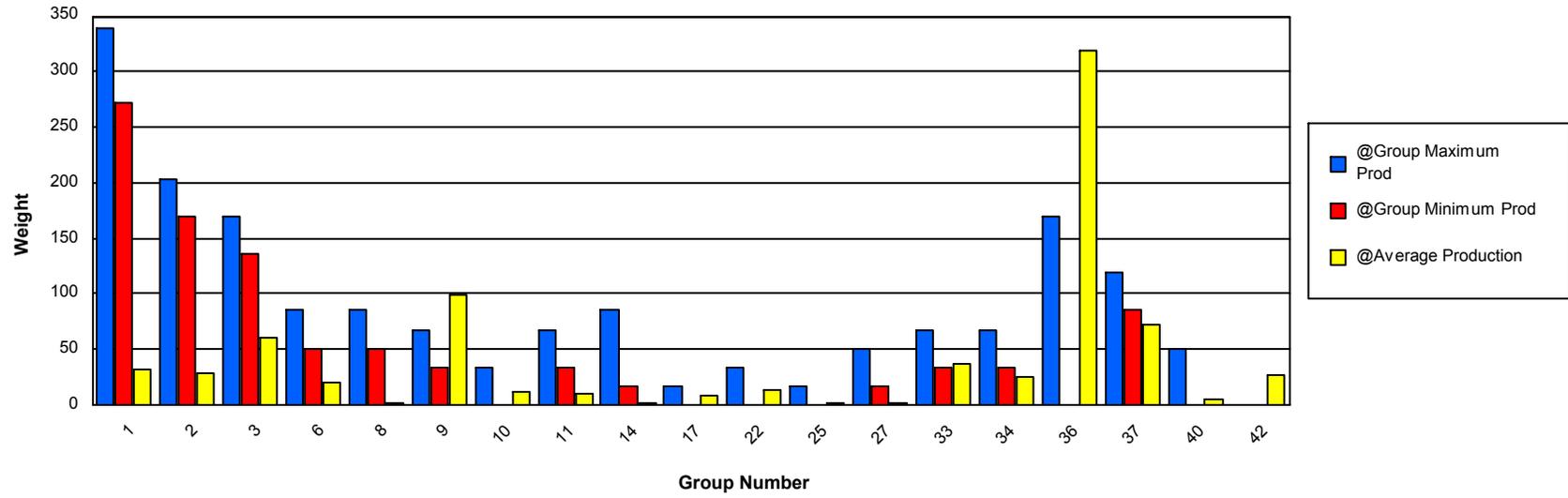
# Functional / Structural Groups

## Report Parameters

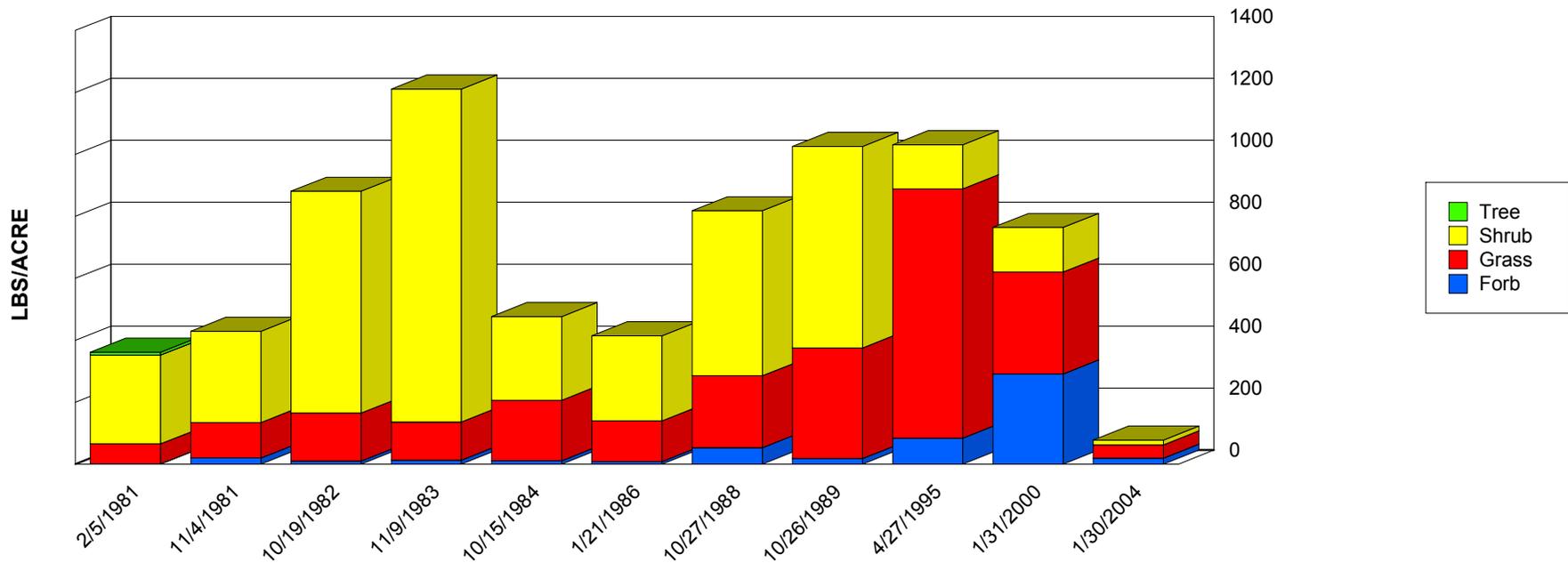
SITE NAME LIKE 65051-#2 BIG SAND E-D023  
 ON/AFTER 10/01/1980  
 ON/BEFORE 09/30/2005  
 MIN LBS TO GRAPH 1  
 SELECTED ECOSITE 070BY061NM

Group	Plant Type	Species	Low Wt Allowed	High Wt Allowed	Minimum	Maximum	Average	STDEV
1	Grass	ANHA	272	340	0.00	56.00	31.81	19.51
2	Grass	SPCO4	170	204	0.67	21.00	12.55	8.53
2	Grass	SPCR	170	204	0.61	42.67	16.30	14.16
3	Grass	ANSC2	136	170	3.33	288.00	60.71	87.34
6	Grass	PASPA2	51	85	0.00	16.60	4.61	5.95
6	Grass	PAST6	51	85	0.00	59.00	14.85	17.62
8	Grass	BOHI2	51	85	0.00	2.92	1.76	1.09
9	Grass	ARIST	34	68	0.00	301.00	99.83	74.96
10	Grass	CECI	0	34	0.00	2.12	0.35	0.79
10	Grass	CEPA7	0	34	2.00	26.00	12.14	9.01
11	Grass	LECO	34	68	1.58	36.00	9.81	10.21
14	Grass	EROX	17	85	0.00	4.99	1.98	1.76
17	Grass	BOBA3	0	17	0.00	15.33	7.67	7.67
22	Grass	MUPO2	0	34	0.67	29.00	12.79	11.92
25	Grass	CAREX	0	17	0.80	2.84	1.84	0.83
25	Grass	CYPER	0	17	0.00	1.42	0.35	0.57
27	Grass	SPGI	17	51	1.33	3.60	2.47	1.13
33	Forb	AAFF	34	68	0.75	276.53	36.65	77.31
34	Forb	ASTER	34	68	0.00	4.80	0.93	1.69
34	Forb	HOFFM	34	68	0.00	4.80	0.80	1.79
34	Forb	PPFF	34	68	0.00	57.00	23.98	24.13
36	Shrub	QUHA3	0	170	0.00	661.20	319.62	241.24
37	Shrub	ARFI2	85	119	0.00	414.00	72.89	119.14
40	Shrub	GUSA2	0	51	2.00	6.80	4.40	2.40
42	Shrub	PRGL2	0	0	4.00	66.67	26.42	23.95

Group Plant Type Species Low Wt Allowed High Wt Allowed Minimum Maximum Average STDEV



# Production Lbs/Acre Trends

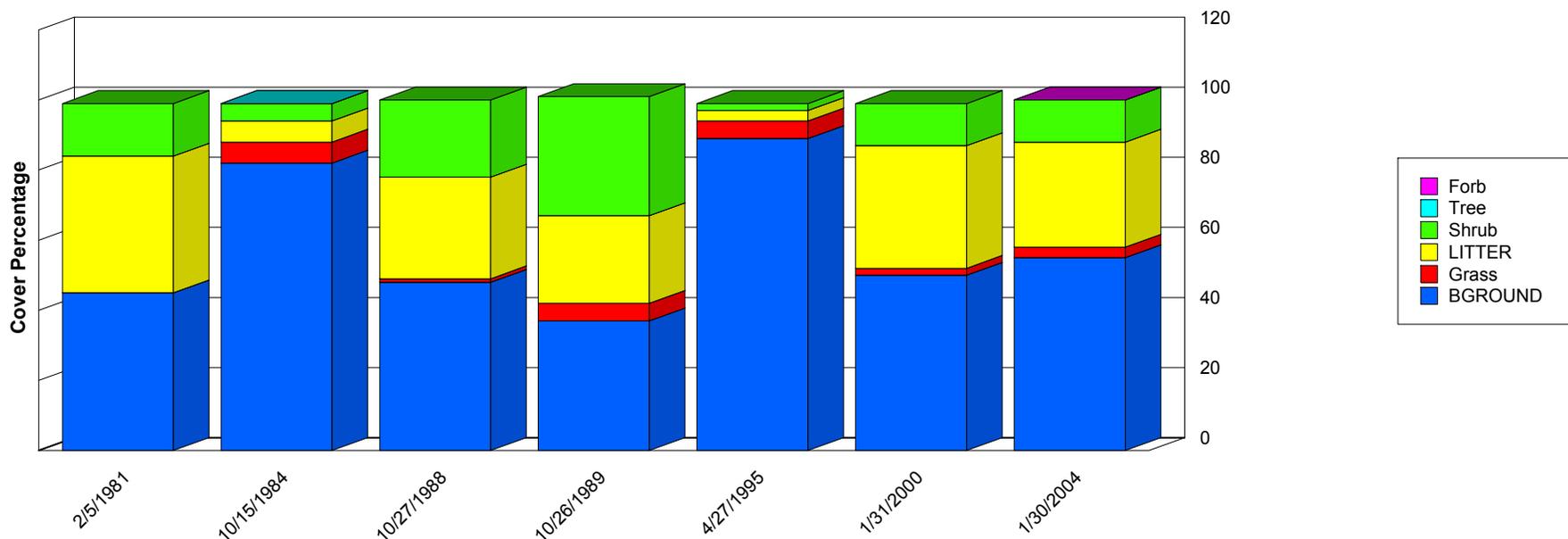


	2/5/1981	11/4/1981	10/19/1982	11/9/1983	10/15/1984	1/21/1986	10/27/1988	10/26/1989	4/27/1995	1/31/2000	1/30/2004
Forb	0.75	19.68	9.74	13.20	11.15	8.00	52.80	17.97	84.00	291.48	19.17
Grass	64.63	114.40	155.14	122.62	195.20	131.56	232.32	356.93	805.00	328.53	42.99
Shrub	286.37	294.64	716.12	1,075.20	270.21	274.44	532.84	650.83	142.00	144.31	15.79
Tree	9.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>361.41</b>	<b>428.72</b>	<b>881.00</b>	<b>1,211.02</b>	<b>476.55</b>	<b>414.00</b>	<b>817.96</b>	<b>1,025.72</b>	<b>1,031.00</b>	<b>764.33</b>	<b>77.95</b>

## Report Parameters

SITE NAME LIKE 65051-#2 BIG SAND E-D023  
 ON/AFTER 10/01/1980  
 ON/BEFORE 09/30/2005

# Ground Cover Trends



	2/5/1981	10/15/1984	10/27/1988	10/26/1989	4/27/1995	1/31/2000	1/30/2004
BGROUND	45.00	82.00	48.00	37.00	89.00	50.00	55.00
Forb	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grass	0.00	6.00	1.00	5.00	5.00	2.00	3.00
LITTER	39.00	6.00	29.00	25.00	3.00	35.00	30.00
Shrub	15.00	5.00	22.00	34.00	2.00	12.00	12.00
Tree	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	99.00	99.00	100.00	101.00	99.00	99.00	100.00

## Report Parameters

SITE NAME LIKE	65051-#2 BIG SAND E-D023
ON/AFTER	10/01/1980
ON/BEFORE	09/30/2005

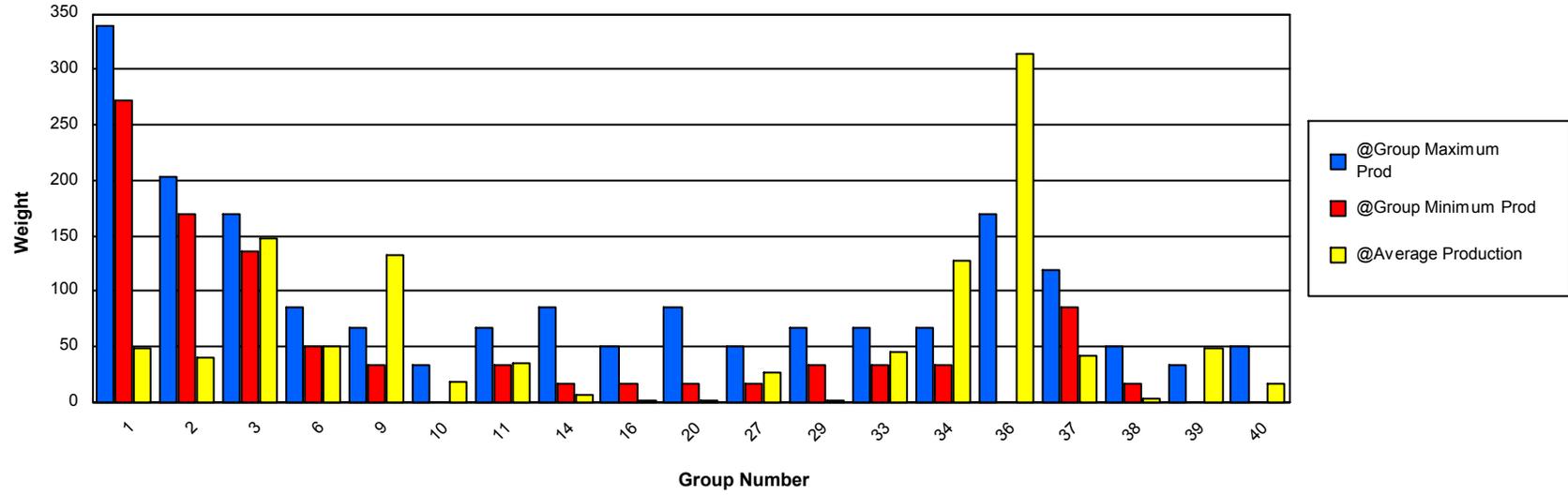
# Functional / Structural Groups

## Report Parameters

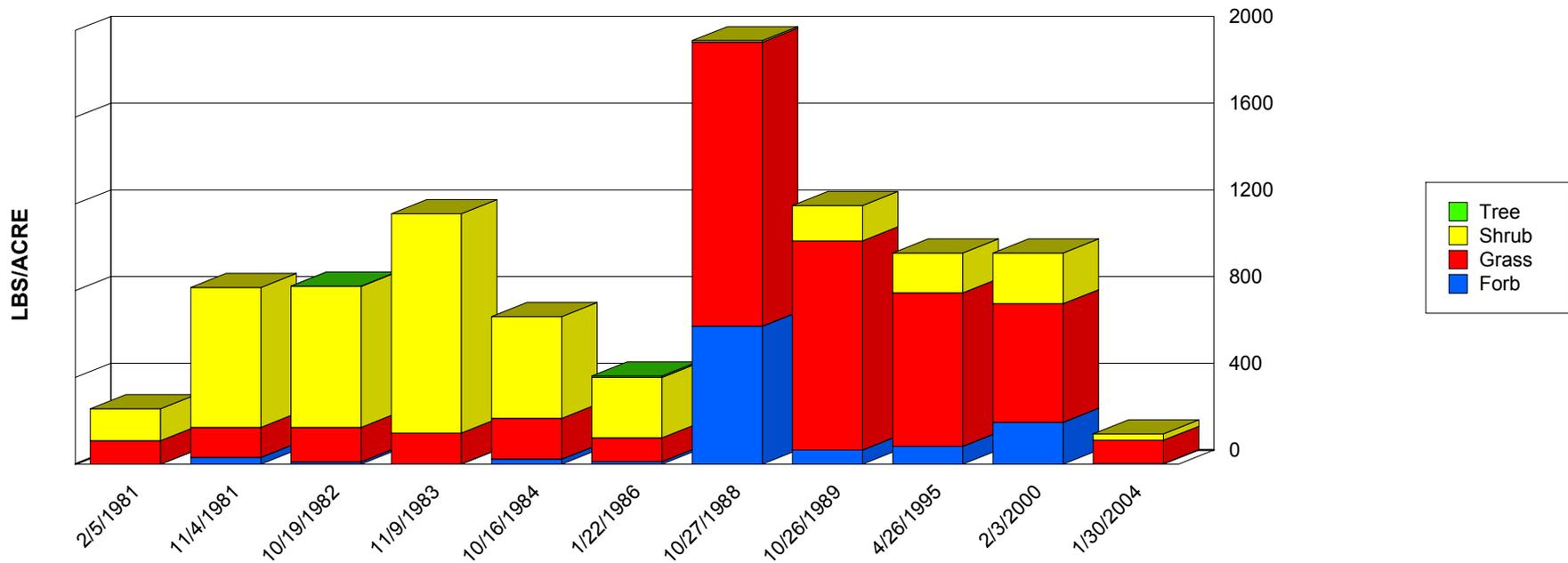
SITE NAME LIKE 65051-HOMESTEAD-D021  
 ON/AFTER 10/01/1980  
 ON/BEFORE 09/30/2005  
 MIN LBS TO GRAPH 1  
 SELECTED ECOSITE 070BY061NM

Group	Plant Type	Species	Low Wt Allowed	High Wt Allowed	Minimum	Maximum	Average	STDEV
1	Grass	ANHA	272	340	6.67	140.00	49.37	48.56
2	Grass	SPCO4	170	204	5.33	32.00	20.14	11.10
2	Grass	SPCR	170	204	0.00	91.00	19.82	28.70
3	Grass	ANSC2	136	170	8.16	353.40	147.84	138.13
6	Grass	PASPA2	51	85	0.00	170.98	29.03	63.49
6	Grass	PAST6	51	85	0.00	84.00	20.99	33.74
9	Grass	ARIST	34	68	0.00	442.68	132.17	142.76
10	Grass	CEPA7	0	34	0.00	63.96	18.77	24.55
11	Grass	LECO	34	68	3.69	117.92	35.50	33.92
14	Grass	EROX	17	85	0.00	23.00	6.65	7.76
16	Grass	CHCU2	17	51	0.00	5.30	1.06	2.12
20	Grass	BOGR2	17	85	0.00	3.23	1.62	1.62
27	Grass	SPGI	17	51	0.60	72.36	26.76	32.36
29	Forb	ERIOG	34	68	1.30	2.00	1.65	0.35
33	Forb	AAFF	34	68	0.00	188.07	45.82	65.40
34	Forb	SENEC	34	68	0.00	480.00	127.05	203.95
36	Shrub	QUHA3	0	170	1.00	965.70	313.40	308.32
37	Shrub	ARFI2	85	119	6.48	102.00	41.87	33.58
38	Shrub	CHRYS9	17	51	0.00	5.47	2.73	2.73
39	Shrub	YUCCA	0	34	0.00	90.00	45.00	45.00
39	Tree	YUEL	0	34	0.94	6.00	3.47	2.53
40	Shrub	GUSA2	0	51	0.75	50.00	17.05	15.73

Group Plant Type Species Low Wt Allowed High Wt Allowed Minimum Maximum Average STDEV



# Production Lbs/Acre Trends

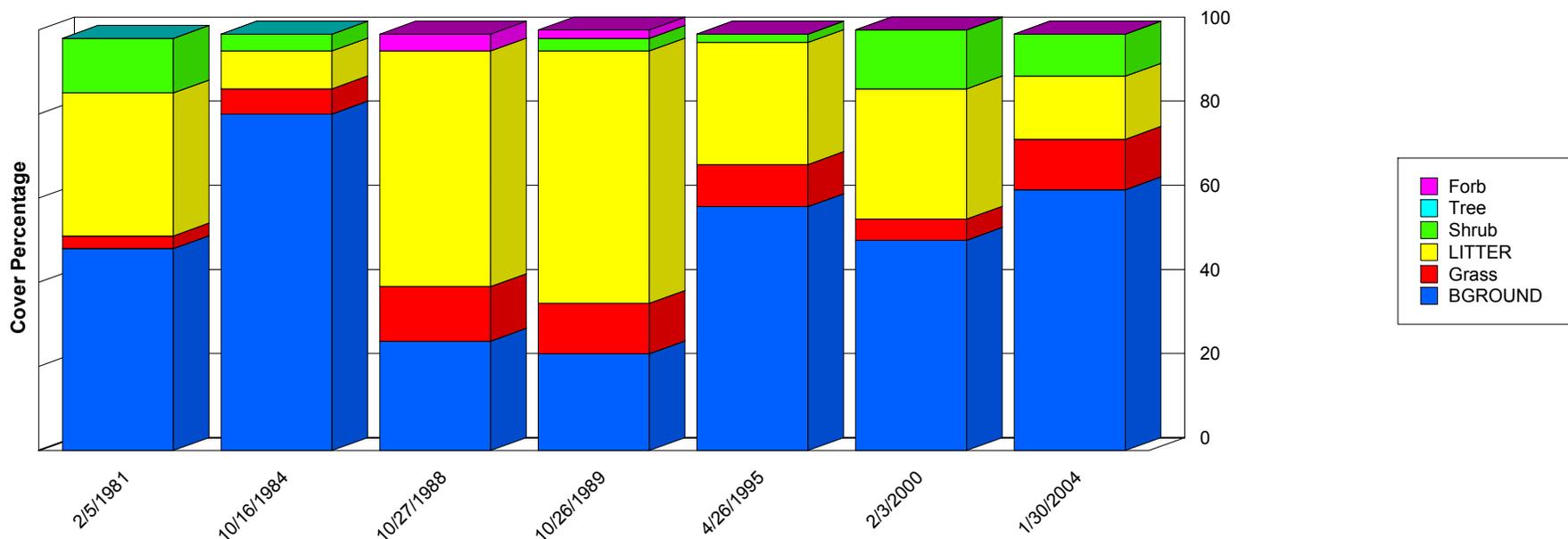


	2/5/1981	1/14/1981	10/19/1982	11/9/1983	10/16/1984	1/22/1986	10/27/1988	10/26/1989	4/26/1995	2/3/2000	1/30/2004
Forb	0.00	31.02	10.68	1.20	22.80	12.00	636.00	65.00	82.00	193.47	2.67
Grass	108.63	138.54	158.82	142.72	188.53	108.96	1,309.94	965.00	708.00	546.41	107.74
Shrub	147.23	645.36	650.34	1,011.24	469.05	279.38	7.20	163.00	184.00	233.83	28.95
Tree	0.00	0.00	0.94	0.00	0.00	6.00	0.00	0.00	0.00	0.00	0.00
Total	255.85	814.92	820.78	1,155.16	680.37	406.34	1,953.14	1,193.00	974.00	973.70	139.36

## Report Parameters

SITE NAME LIKE 65051-HOMESTEAD-D021  
 ON/AFTER 10/01/1980  
 ON/BEFORE 09/30/2005

# Ground Cover Trends



	2/5/1981	10/16/1984	10/27/1988	10/26/1989	4/26/1995	2/3/2000	1/30/2004
BGROUND	48.00	80.00	26.00	23.00	58.00	50.00	62.00
Forb	0.00	0.00	4.00	2.00	0.00	0.00	0.00
Grass	3.00	6.00	13.00	12.00	10.00	5.00	12.00
LITTER	34.00	9.00	56.00	60.00	29.00	31.00	15.00
Shrub	13.00	4.00	0.00	3.00	2.00	14.00	10.00
Tree	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	98.00	99.00	99.00	100.00	99.00	100.00	99.00

## Report Parameters

SITE NAME LIKE	65051-HOMESTEAD-D021
ON/AFTER	10/01/1980
ON/BEFORE	09/30/2005

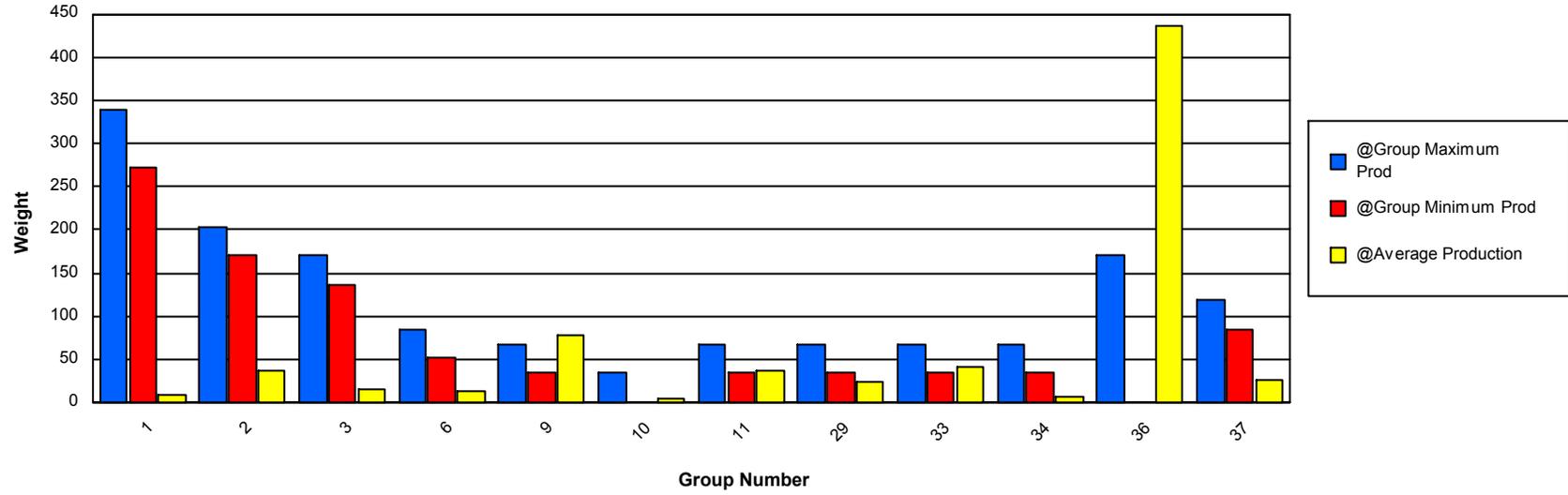
# Functional / Structural Groups

## Report Parameters

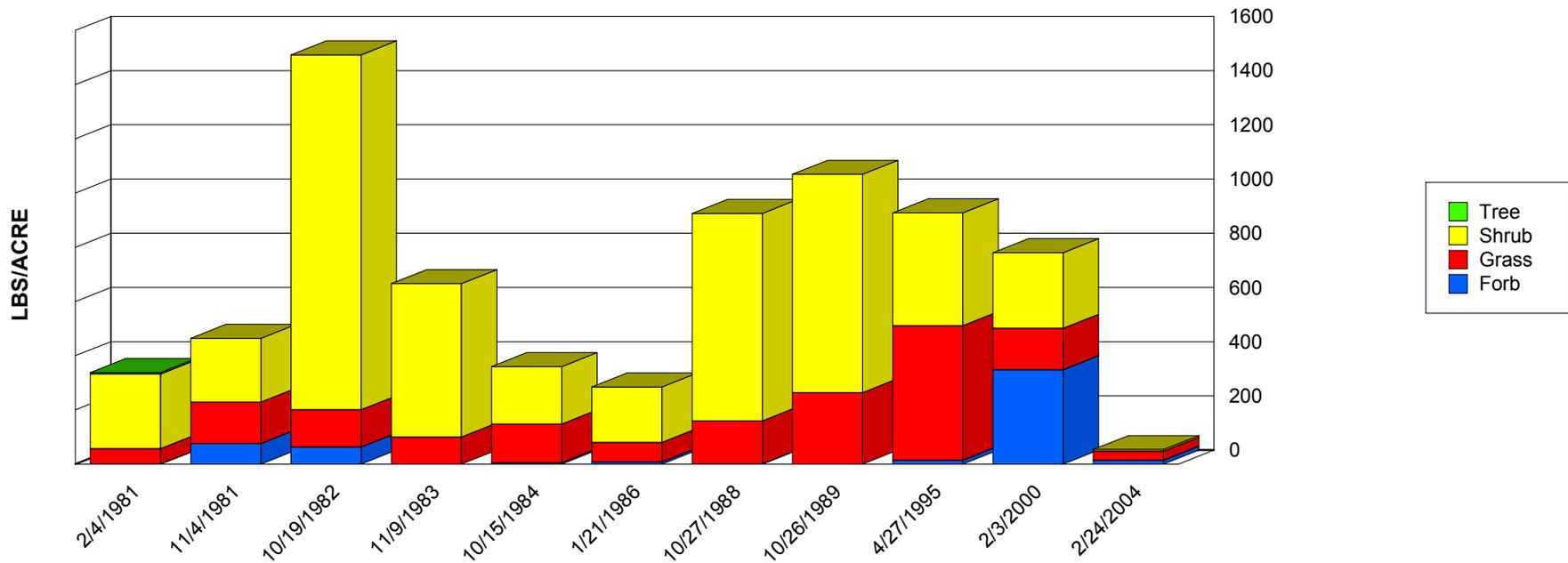
SITE NAME LIKE 65051-RED TANK-D024  
 ON/AFTER 10/01/1980  
 ON/BEFORE 09/30/2005  
 MIN LBS TO GRAPH 1  
 SELECTED ECOSITE 070BY061NM

Group	Plant Type	Species	Low Wt Allowed	High Wt Allowed	Minimum	Maximum	Average	STDEV
1	Grass	ANHA	272	340	0.67	15.40	8.03	7.37
2	Grass	SPCO4	170	204	2.00	67.00	24.56	30.03
2	Grass	SPCR	170	204	0.67	29.00	11.17	7.76
3	Grass	ANSC2	136	170	0.66	37.47	15.39	13.86
6	Grass	PASPA2	51	85	0.00	2.12	0.63	0.90
6	Grass	PAST6	51	85	0.00	55.00	12.97	16.88
9	Grass	ARIST	34	68	0.00	253.00	77.48	68.32
10	Grass	CEPA7	0	34	1.33	14.00	5.07	4.24
11	Grass	LECO	34	68	1.90	78.00	36.58	24.84
29	Forb	ERIOG	34	68	1.76	62.40	22.72	28.07
33	Forb	AAFF	34	68	0.00	333.56	40.27	103.79
34	Forb	SENEC	34	68	0.00	14.76	7.38	7.38
36	Shrub	QUHA3	0	170	4.62	1,258.74	437.44	351.97
37	Shrub	ARFI2	85	119	0.55	87.47	25.98	26.52

Group Plant Type Species Low Wt Allowed High Wt Allowed Minimum Maximum Average STDEV



# Production Lbs/Acre Trends

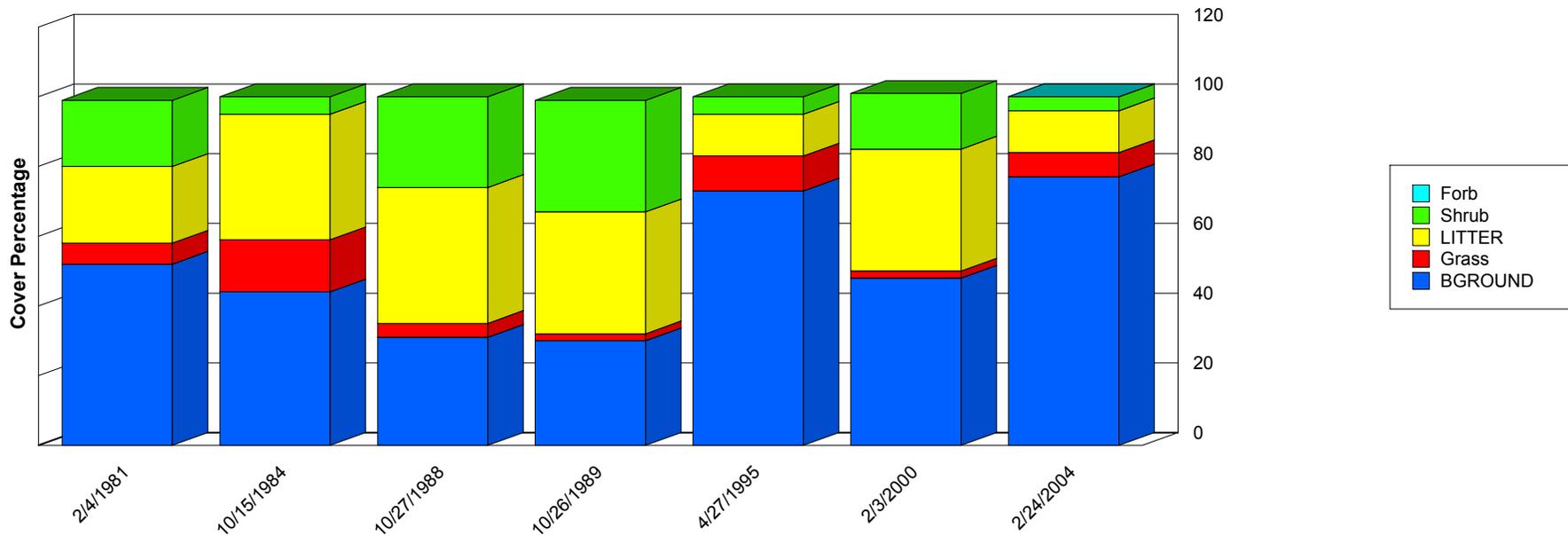


	2/4/1981	11/4/1981	10/19/1982	11/9/1983	10/15/1984	1/21/1986	10/27/1988	10/26/1989	4/27/1995	2/3/2000	2/24/2004
Forb	0.75	76.48	63.26	0.00	5.28	8.36	1.20	0.00	15.00	348.32	14.52
Grass	57.00	152.38	137.62	100.20	143.00	72.02	158.40	263.83	496.00	152.73	33.08
Shrub	274.95	235.48	1,309.14	565.50	211.60	204.66	765.74	805.63	416.00	278.87	6.31
Tree	5.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	338.03	464.34	1,510.02	665.70	359.88	285.04	925.34	1,069.46	927.00	779.92	53.91

## Report Parameters

SITE NAME LIKE 65051-RED TANK-D024  
 ON/AFTER 10/01/1980  
 ON/BEFORE 09/30/2005

# Ground Cover Trends



	2/4/1981	10/15/1984	10/27/1988	10/26/1989	4/27/1995	2/3/2000	2/24/2004
BGROUND	52.00	44.00	31.00	30.00	73.00	48.00	77.00
Forb	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grass	6.00	15.00	4.00	2.00	10.00	2.00	7.00
LITTER	22.00	36.00	39.00	35.00	12.00	35.00	12.00
Shrub	19.00	5.00	26.00	32.00	5.00	16.00	4.00
Total	99.00	100.00	100.00	99.00	100.00	101.00	100.00

## Report Parameters

SITE NAME LIKE	65051-RED TANK-D024
ON/AFTER	10/01/1980
ON/BEFORE	09/30/2005

## Robel Pole Summary over Time Report

Report Parameters

SITE NAME LIKE 65051-HOMESTEAD-D021

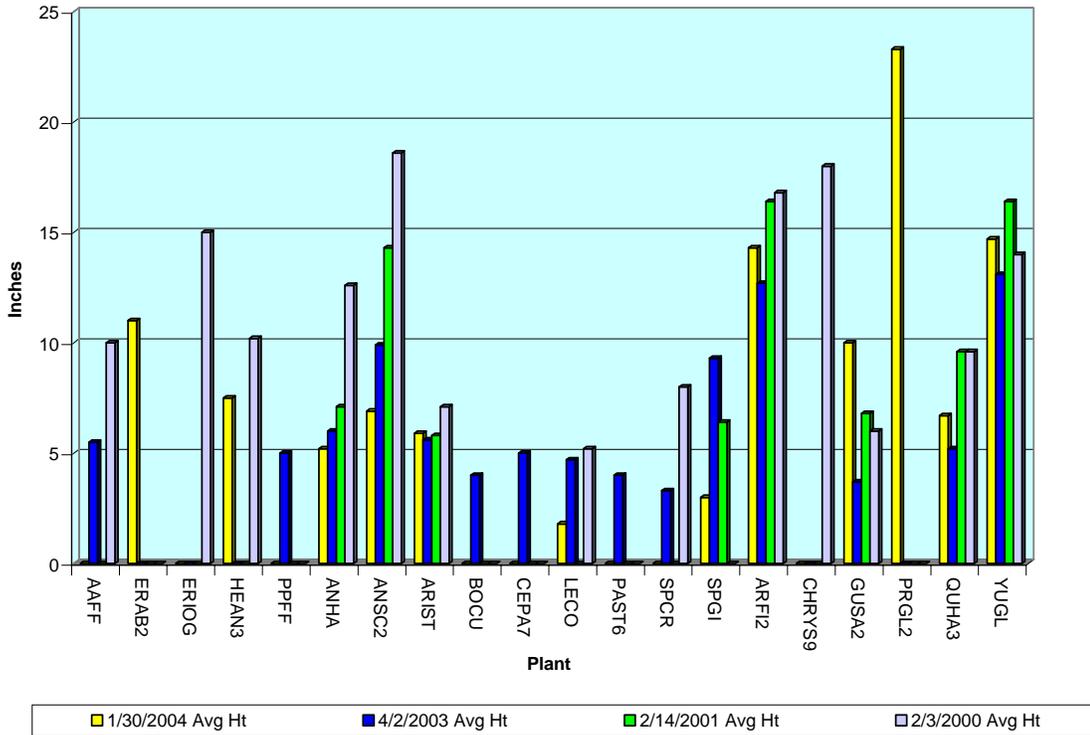
ON/AFTER 10/01/1998

ON/BEFORE 09/30/2005

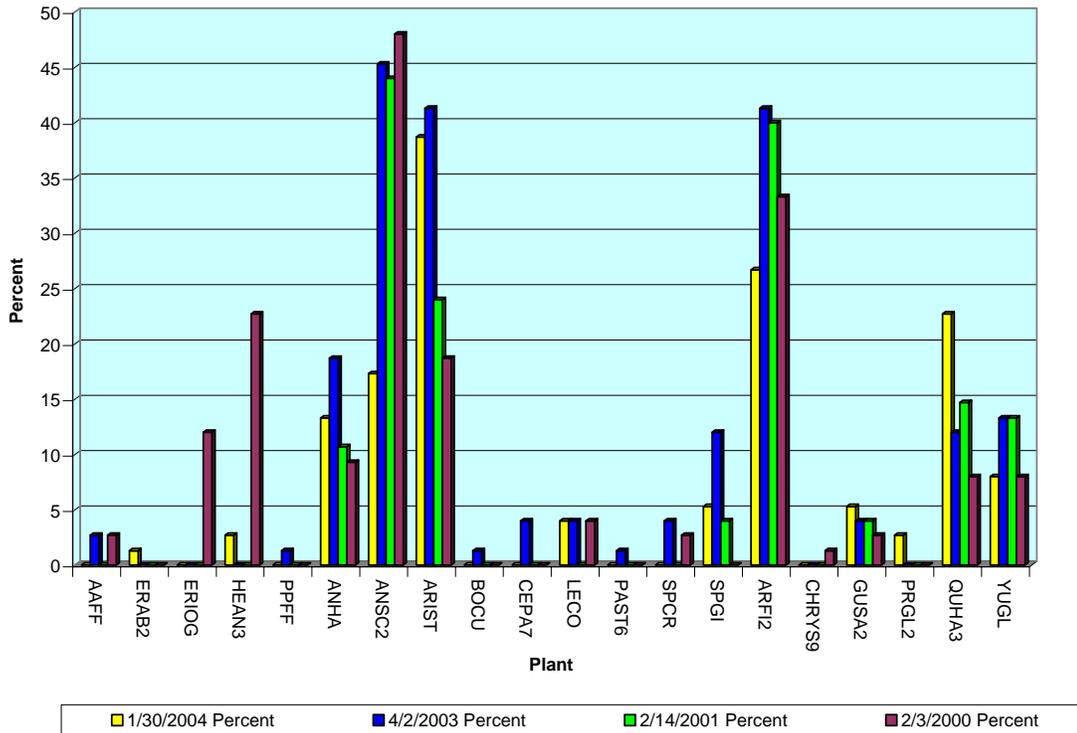
Primary Obstructions	<b>65051-HOMESTEAD-D021</b>	<b>65051-HOMESTEAD-D021</b>	<b>65051-HOMESTEAD-D021</b>	<b>65051-HOMESTEAD-D021</b>
	<b>01/30/2004</b>	<b>04/02/2003</b>	<b>02/14/2001</b>	<b>02/03/2000</b>
Flag Stations	2	10	17	26
	% Hits	% Hits	% Hits	% Hits
BGROUND	46.7 %	48.0 %	86.7 %	64.0 %
LITTER	33.3 %	33.3 %	8.0 %	22.7 %
ARFI2	0.0 %	2.7 %	1.3 %	1.3 %
GUSA2	0.0 %	0.0 %	0.0 %	1.3 %
QUHA3	1.3 %	0.0 %	0.0 %	0.0 %
YUGL	2.7 %	0.0 %	0.0 %	1.3 %
ANHA	1.3 %	0.0 %	0.0 %	1.3 %
ANSC2	4.0 %	10.7 %	2.7 %	4.0 %
ARIST	8.0 %	4.0 %	1.3 %	2.7 %
LECO	2.7 %	0.0 %	0.0 %	1.3 %
PAST6	0.0 %	1.3 %	0.0 %	0.0 %

Secondary Obstructions	65051- HOMESTEAD- D021		65051- HOMESTEAD- D021		65051- HOMESTEAD- D021		65051- HOMESTEAD- D021	
	01/30/2004		04/02/2003		02/14/2001		02/03/2000	
	Percent	Avg Ht	Percent	Avg Ht	Percent	Avg Ht	Percent	Avg Ht
AAFF	0.0	0.0	2.7	5.5	0.0	0.0	2.7	10.0
ANHA	13.3	5.2	18.7	6.0	10.7	7.1	9.3	12.6
ANSC2	17.3	6.9	45.3	9.9	44.0	14.3	48.0	18.6
ARFI2	26.7	14.3	41.3	12.7	40.0	16.4	33.3	16.8
ARIST	38.7	5.9	41.3	5.6	24.0	5.8	18.7	7.1
BOCU	0.0	0.0	1.3	4.0	0.0	0.0	0.0	0.0
CEPA7	0.0	0.0	4.0	5.0	0.0	0.0	0.0	0.0
CHRY9	0.0	0.0	0.0	0.0	0.0	0.0	1.3	18.0
ERAB2	1.3	11.0	0.0	0.0	0.0	0.0	0.0	0.0
ERIOG	0.0	0.0	0.0	0.0	0.0	0.0	12.0	15.0
GUSA2	5.3	10.0	4.0	3.7	4.0	6.8	2.7	6.0
HEAN3	2.7	7.5	0.0	0.0	0.0	0.0	22.7	10.2
LECO	4.0	1.8	4.0	4.7	0.0	0.0	4.0	5.2
PAST6	0.0	0.0	1.3	4.0	0.0	0.0	0.0	0.0
PPFF	0.0	0.0	1.3	5.0	0.0	0.0	0.0	0.0
PRGL2	2.7	23.3	0.0	0.0	0.0	0.0	0.0	0.0
QUHA3	22.7	6.7	12.0	5.2	14.7	9.6	8.0	9.6
SPCR	0.0	0.0	4.0	3.3	0.0	0.0	2.7	8.0
SPGI	5.3	3.0	12.0	9.3	4.0	6.4	0.0	0.0
YUGL	8.0	14.7	13.3	13.1	13.3	16.4	8.0	14.0

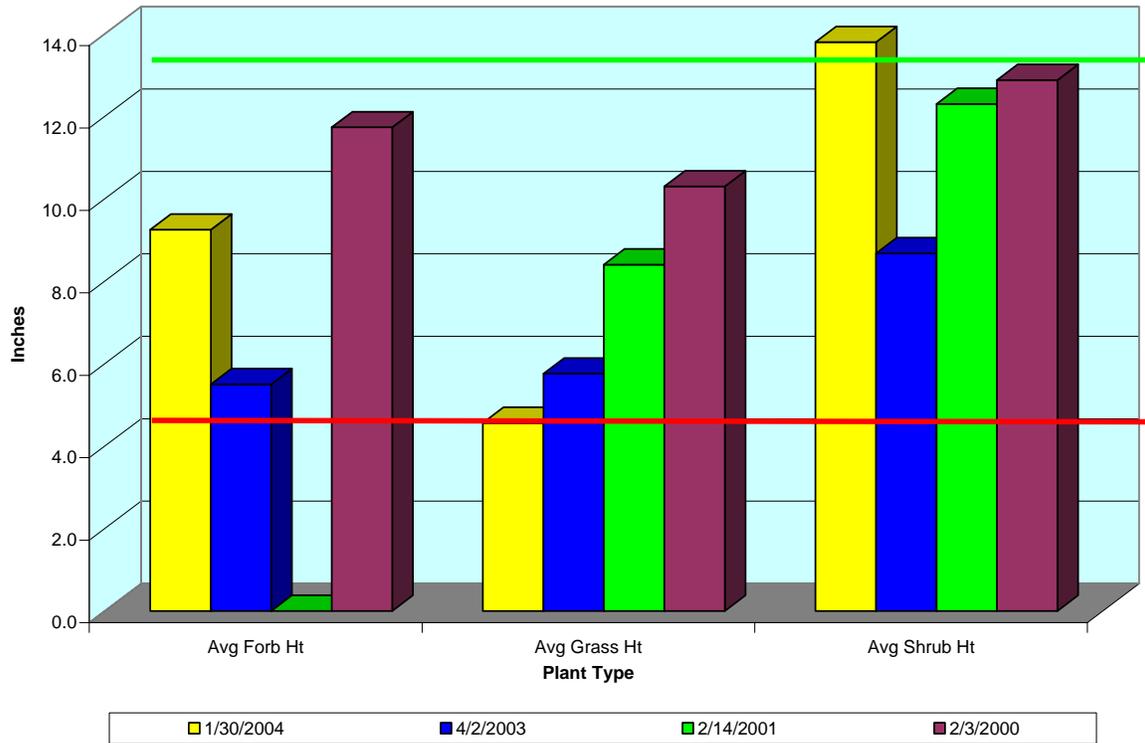
### Average Visual Obstruction Height



### Plant Composition



Plant Type Average Visual Obstruction Height



## Robel Pole Summary over Time Report

Report Parameters

SITE NAME LIKE 65051-#1 BIG SAND W-D022

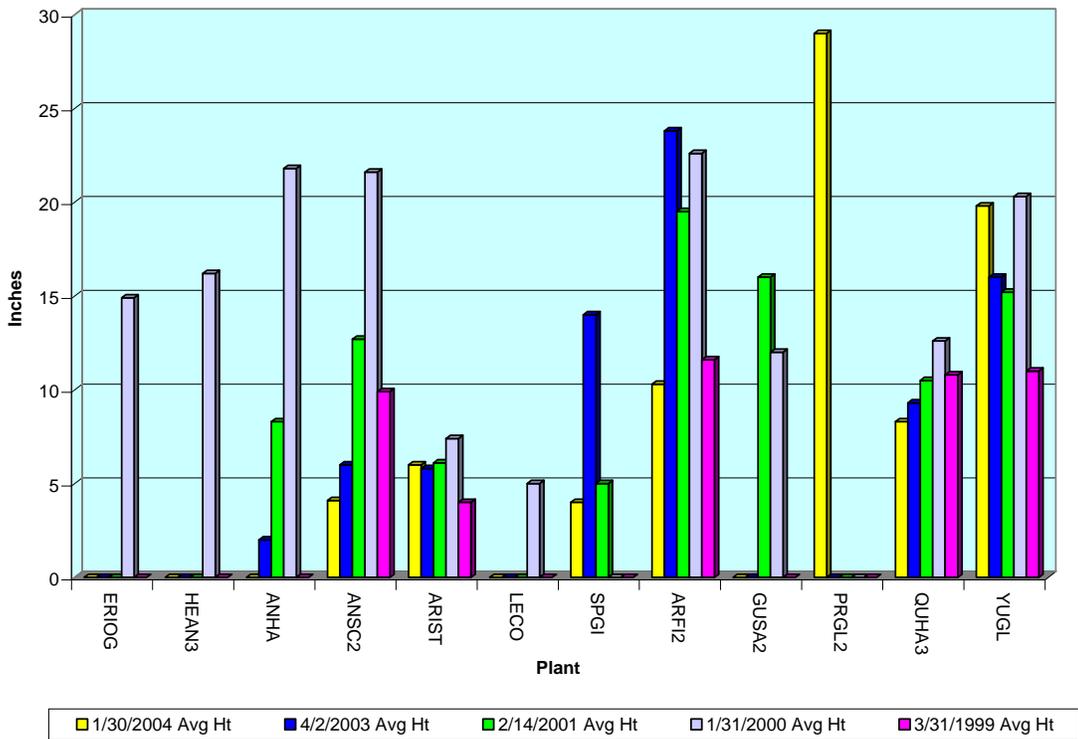
ON/AFTER 10/01/1998

ON/BEFORE 09/30/2005

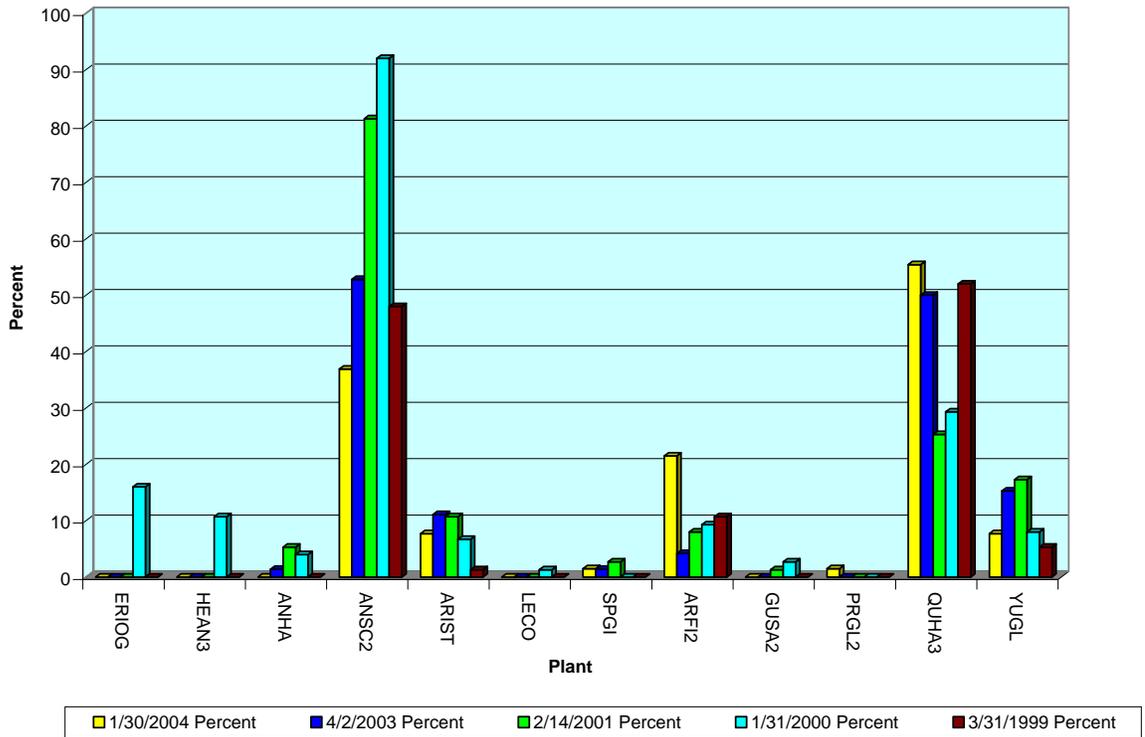
Primary Obstructions	<b>65051-#1 BIG SAND W-D022</b>				
	<b>01/30/2004</b>	<b>04/02/2003</b>	<b>02/14/2001</b>	<b>01/31/2000</b>	<b>03/31/1999</b>
Flag Stations	0	3	15	52	2
	% Hits				
BGROUND	58.5 %	58.3 %	70.7 %	46.7 %	64.0 %
LITTER	23.1 %	37.5 %	25.3 %	20.0 %	14.7 %
ARFI2	1.5 %	0.0 %	1.3 %	0.0 %	0.0 %
GUSA2	0.0 %	0.0 %	0.0 %	1.3 %	0.0 %
QUHA3	7.7 %	0.0 %	0.0 %	2.7 %	9.3 %
YUGL	0.0 %	0.0 %	1.3 %	0.0 %	0.0 %
ANSC2	7.7 %	4.2 %	1.3 %	22.7 %	12.0 %
ARIST	1.5 %	0.0 %	0.0 %	6.7 %	0.0 %

Secondary Obstructions	65051-#1 BIG SAND W-D022									
	01/30/2004		04/02/2003		02/14/2001		01/31/2000		03/31/1999	
	Percent	Avg Ht								
ANHA	0.0	0.0	1.4	2.0	5.3	8.3	4.0	21.8	0.0	0.0
ANSC2	36.9	4.1	52.8	6.0	81.3	12.7	92.0	21.6	48.0	9.9
ARFI2	21.5	10.3	4.2	23.8	8.0	19.5	9.3	22.6	10.7	11.6
ARIST	7.7	6.0	11.1	5.8	10.7	6.1	6.7	7.4	1.3	4.0
ERIOG	0.0	0.0	0.0	0.0	0.0	0.0	16.0	14.9	0.0	0.0
GUSA2	0.0	0.0	0.0	0.0	1.3	16.0	2.7	12.0	0.0	0.0
HEAN3	0.0	0.0	0.0	0.0	0.0	0.0	10.7	16.2	0.0	0.0
LECO	0.0	0.0	0.0	0.0	0.0	0.0	1.3	5.0	0.0	0.0
PRGL2	1.5	29.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
QUHA3	55.4	8.3	50.0	9.3	25.3	10.5	29.3	12.6	52.0	10.8
SPGI	1.5	4.0	1.4	14.0	2.7	5.0	0.0	0.0	0.0	0.0
YUGL	7.7	19.8	15.3	16.0	17.3	15.2	8.0	20.3	5.3	11.0

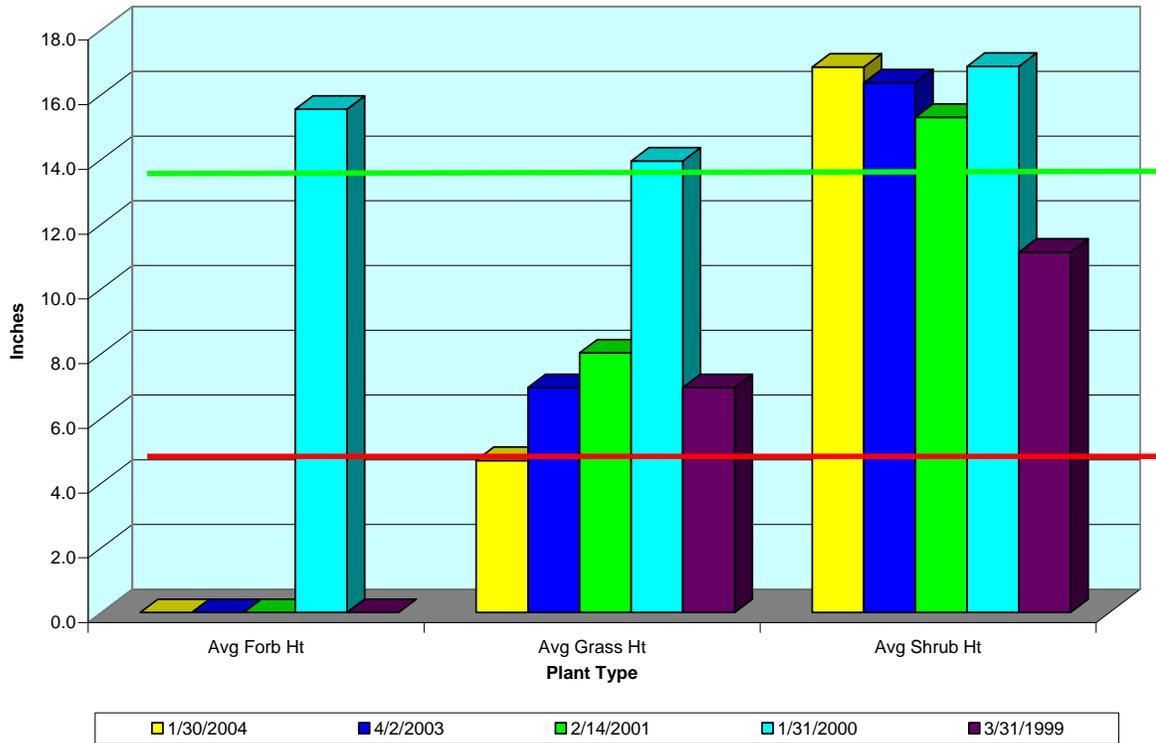
### Average Visual Obstruction Height



### Plant Composition



Plant Type Average Visual Obstruction Height



## Robel Pole Summary over Time Report

Report Parameters

SITE NAME LIKE 65051-#2 BIG SAND E-D023

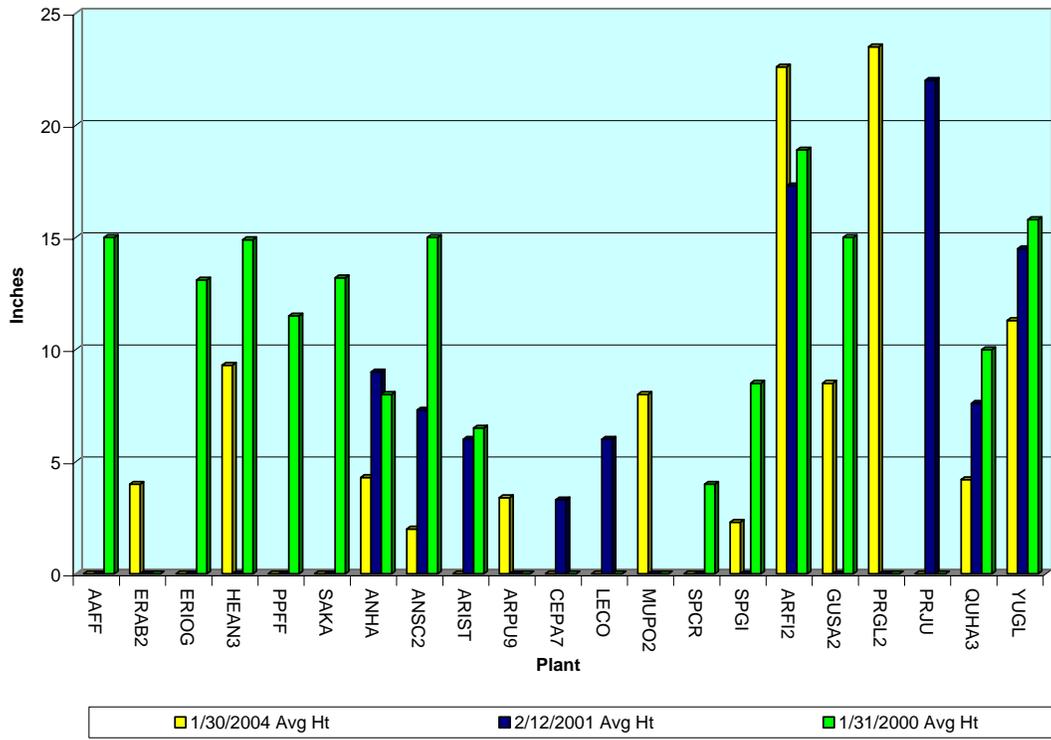
ON/AFTER 10/01/1998

ON/BEFORE 09/30/2005

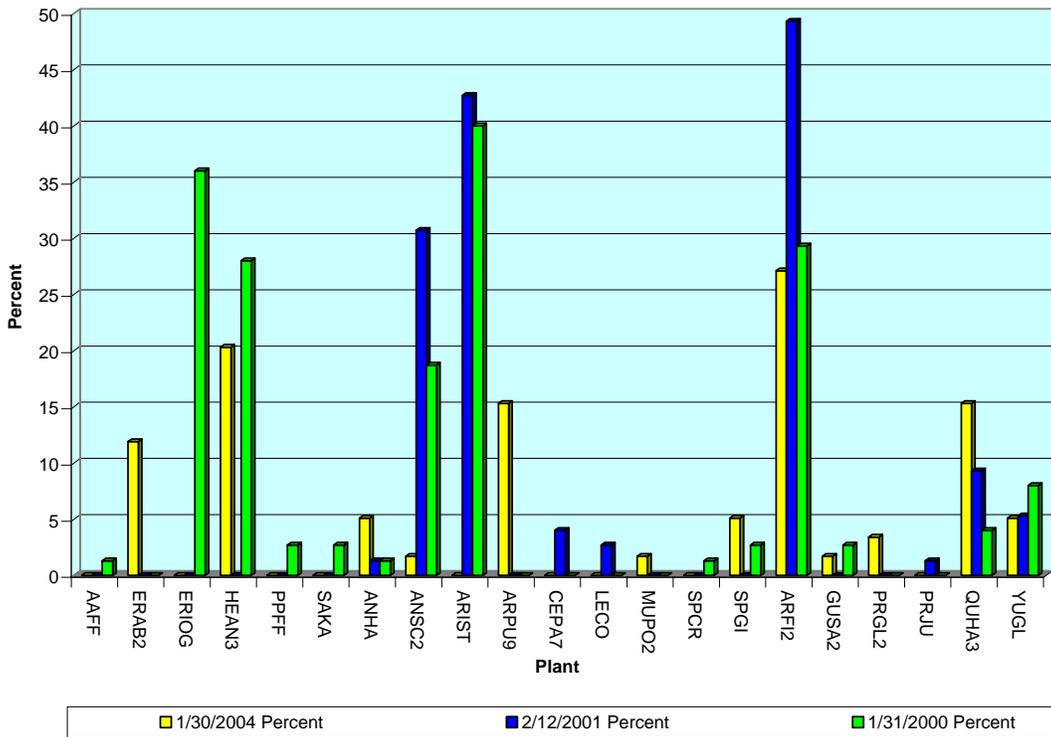
Primary Obstructions	65051-#2 BIG SAND E-D023	65051-#2 BIG SAND E-D023	65051-#2 BIG SAND E-D023
	01/30/2004	02/12/2001	01/31/2000
Flag Stations	1	5	12
	% Hits	% Hits	% Hits
BGROUND	62.7 %	80.0 %	74.7 %
LITTER	25.4 %	17.3 %	12.0 %
ARFI2	3.4 %	0.0 %	1.3 %
QUHA3	1.7 %	0.0 %	0.0 %
YUGL	0.0 %	0.0 %	2.7 %
ANSC2	0.0 %	0.0 %	2.7 %
ARIST	0.0 %	2.7 %	5.3 %
ARPU9	3.4 %	0.0 %	0.0 %
MUPO2	1.7 %	0.0 %	0.0 %
SPCR	0.0 %	0.0 %	1.3 %
ERAB2	1.7 %	0.0 %	0.0 %

Secondary Obstructions	65051-#2 BIG SAND E-D023		65051-#2 BIG SAND E-D023		65051-#2 BIG SAND E-D023	
	01/30/2004		02/12/2001		01/31/2000	
	Percent	Avg Ht	Percent	Avg Ht	Percent	Avg Ht
AAFF	0.0	0.0	0.0	0.0	1.3	15.0
ANHA	5.1	4.3	1.3	9.0	1.3	8.0
ANSC2	1.7	2.0	30.7	7.3	18.7	15.0
ARFI2	27.1	22.6	49.3	17.3	29.3	18.9
ARIST	0.0	0.0	42.7	6.0	40.0	6.5
ARPU9	15.3	3.4	0.0	0.0	0.0	0.0
CEPA7	0.0	0.0	4.0	3.3	0.0	0.0
ERAB2	11.9	4.0	0.0	0.0	0.0	0.0
ERIOG	0.0	0.0	0.0	0.0	36.0	13.1
GUSA2	1.7	8.5	0.0	0.0	2.7	15.0
HEAN3	20.3	9.3	0.0	0.0	28.0	14.9
LECO	0.0	0.0	2.7	6.0	0.0	0.0
MUPO2	1.7	8.0	0.0	0.0	0.0	0.0
PPFF	0.0	0.0	0.0	0.0	2.7	11.5
PRGL2	3.4	23.5	0.0	0.0	0.0	0.0
PRJU	0.0	0.0	1.3	22.0	0.0	0.0
QUHA3	15.3	4.2	9.3	7.6	4.0	10.0
SAKA	0.0	0.0	0.0	0.0	2.7	13.2
SPCR	0.0	0.0	0.0	0.0	1.3	4.0
SPGI	5.1	2.3	0.0	0.0	2.7	8.5
YUGL	5.1	11.3	5.3	14.5	8.0	15.8

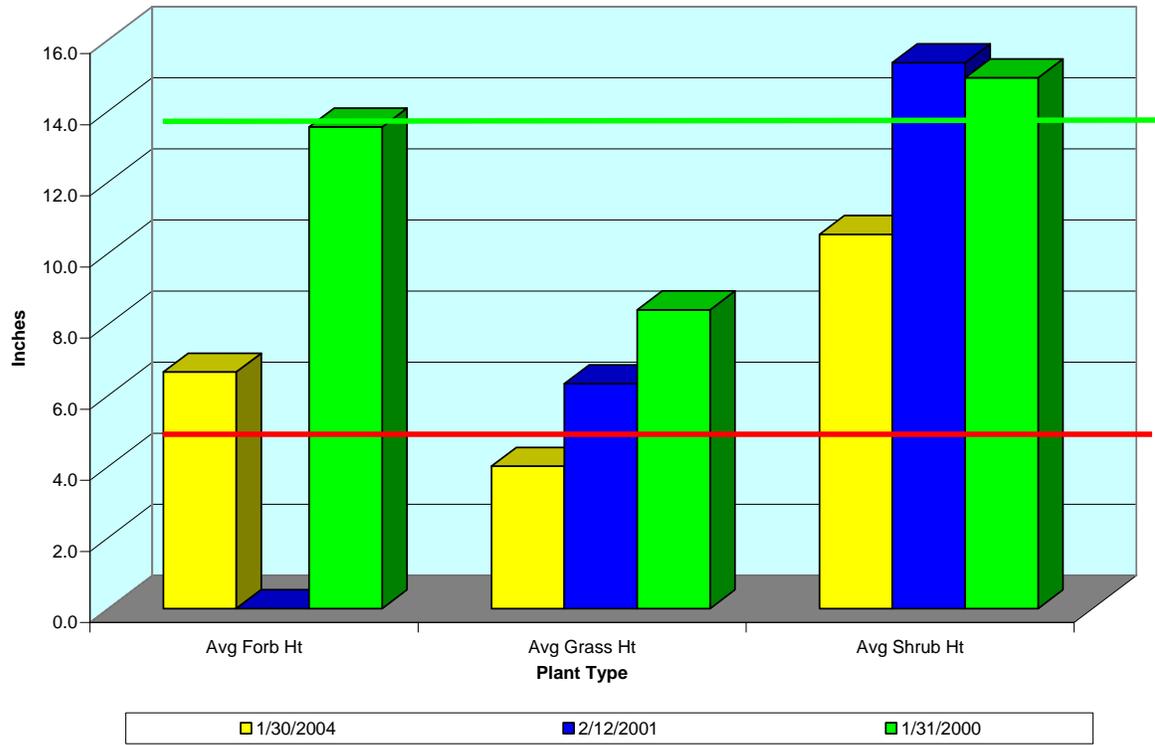
### Average Visual Obstruction Height



### Plant Composition



Plant Type Average Visual Obstruction Height



## Robel Pole Summary over Time Report

Report Parameters

SITE NAME LIKE 65051-RED TANK-D024

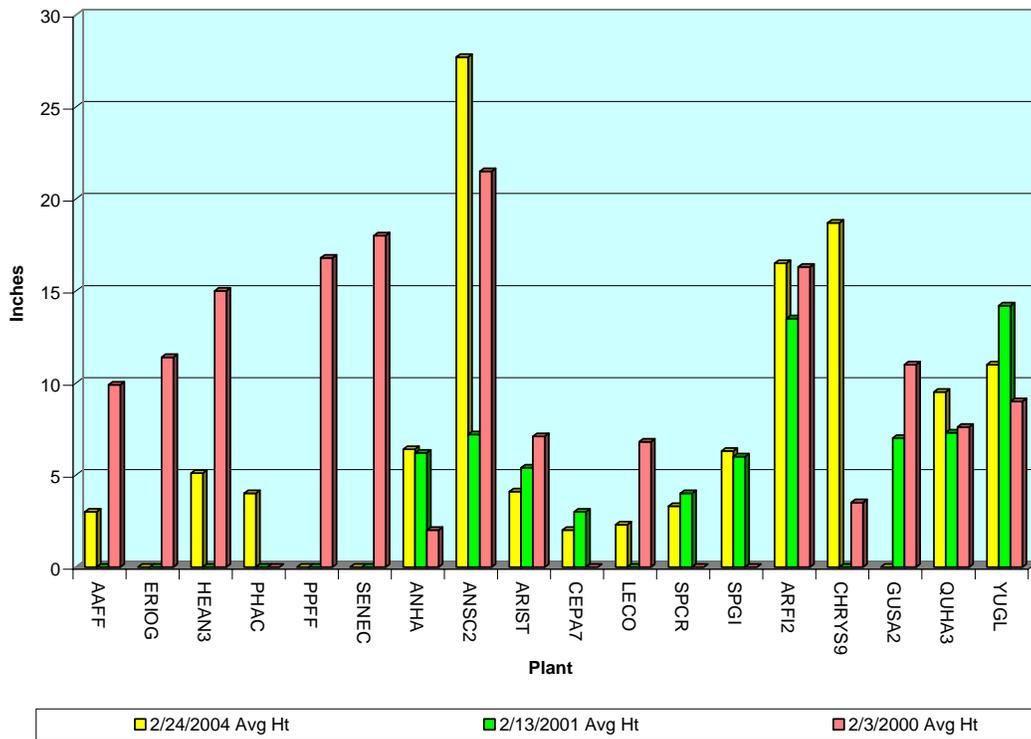
ON/AFTER 10/01/1998

ON/BEFORE 09/30/2005

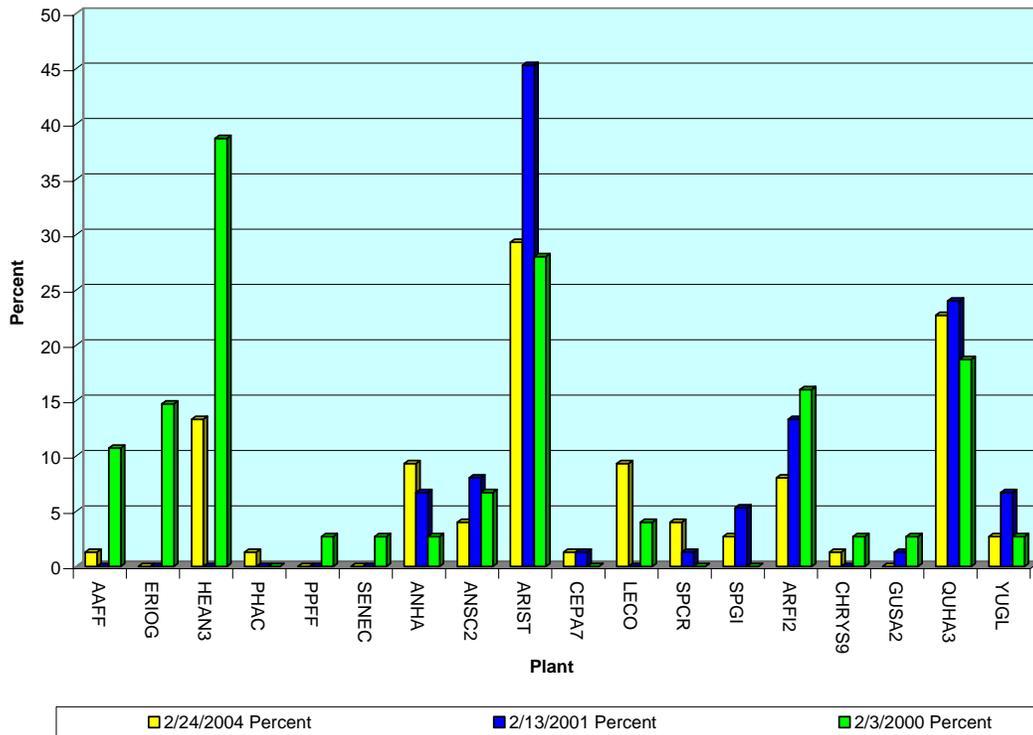
Primary Obstructions	65051-RED TANK-D024	65051-RED TANK-D024	65051-RED TANK-D024
	02/24/2004	02/13/2001	02/03/2000
Flag Stations	0	0	7
	% Hits	% Hits	% Hits
BGROUND	62.7 %	74.7 %	72.0 %
LITTER	28.0 %	21.3 %	18.7 %
ARFI2	2.7 %	0.0 %	0.0 %
CHRYS9	1.3 %	0.0 %	0.0 %
QUHA3	1.3 %	0.0 %	2.7 %
ANSC2	0.0 %	2.7 %	1.3 %
ARIST	1.3 %	1.3 %	4.0 %
LECO	2.7 %	0.0 %	1.3 %

Secondary Obstructions	65051-RED TANK- D024		65051-RED TANK- D024		65051-RED TANK- D024	
	02/24/2004		02/13/2001		02/03/2000	
	Percent	Avg Ht	Percent	Avg Ht	Percent	Avg Ht
AAFF	1.3	3.0	0.0	0.0	10.7	9.9
ANHA	9.3	6.4	6.7	6.2	2.7	2.0
ANSC2	4.0	27.7	8.0	7.2	6.7	21.5
ARFI2	8.0	16.5	13.3	13.5	16.0	16.3
ARIST	29.3	4.1	45.3	5.4	28.0	7.1
CEPA7	1.3	2.0	1.3	3.0	0.0	0.0
CHRYS9	1.3	18.7	0.0	0.0	2.7	3.5
ERIOG	0.0	0.0	0.0	0.0	14.7	11.4
GUSA2	0.0	0.0	1.3	7.0	2.7	11.0
HEAN3	13.3	5.1	0.0	0.0	38.7	15.0
LECO	9.3	2.3	0.0	0.0	4.0	6.8
PHAC	1.3	4.0	0.0	0.0	0.0	0.0
PPFF	0.0	0.0	0.0	0.0	2.7	16.8
QUHA3	22.7	9.5	24.0	7.3	18.7	7.6
SENEC	0.0	0.0	0.0	0.0	2.7	18.0
SPCR	4.0	3.3	1.3	4.0	0.0	0.0
SPGI	2.7	6.3	5.3	6.0	0.0	0.0
YUGL	2.7	11.0	6.7	14.2	2.7	9.0

### Average Visual Obstruction Height



### Plant Composition



Plant Type Average Visual Obstruction Height

