

2005 ANNUAL SILVERSWORD CENSUS

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To learn more about the Haleakala Silversword or hinahina (*Argyroxiphium sandwicense* subsp. *macrocephalum*), and to keep a pulse on this park icon, each year the flowering silverswords are counted, and 11 silversword plots are monitored. Below are the results from the 2005 silversword census and plot monitoring.

FLOWERING CENSUS

The Haleakala silversword flowers once and then dies. The silversword flowering census attempts to count all the flowering silverswords each year. The flowering silversword census was sporadically done from 1934 to 1962. Since 1969, the flowering silverswords census has been done almost every year.

- 2005 was the 9th largest silversword flowering event out of 38 years on record.
- There were 1,335 blooms in 2005. The largest year ever was 1991 with 6,632 blooms. The smallest year ever was 1970 with 0 blooms.
- Though there were many large silverswords (>20 cm live crown diameter) that flowered this year, especially along Sliding Sands Trail and at the summit, also of note are a number of small (<20 cm diam.) silverswords flowering in 2005.

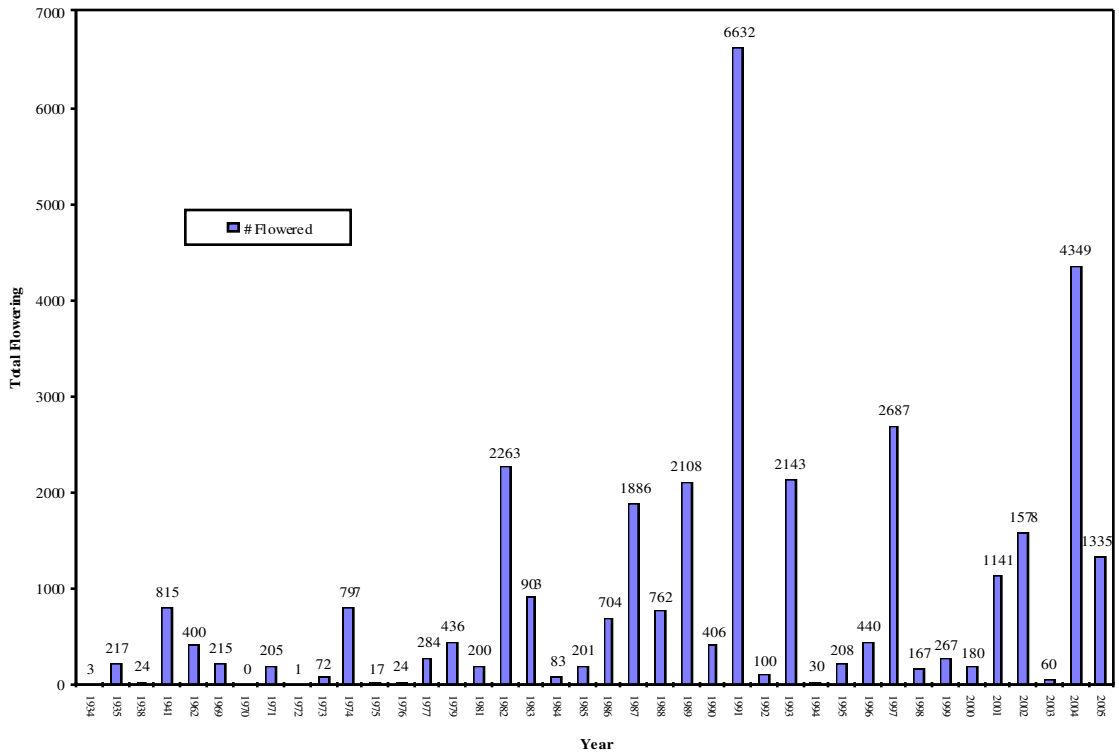
PLOTS

The 11 silversword monitoring plots attempt to monitor a representative sample of the silverswords by mapping individual silverswords in the plot, measuring live crown diameter of each silversword in the plots, and noting life history changes (seedlings, flowered, death). The silversword monitoring plots were established in 1982 and have been monitored almost every year since then.

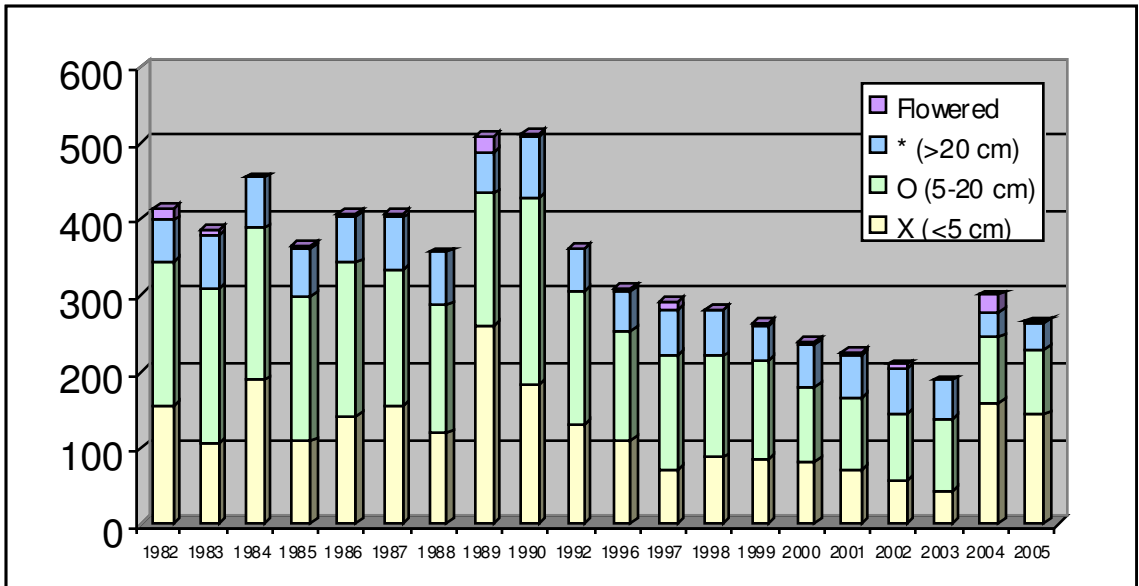
- The total number of silverswords in the plots this year declined 12% (36 swords) from last year, from 301 to 265.
- The total number of silverswords in the plots this year declined 36% (149 swords) from when the plots were established in 1982, from 414 to 265.
- 25 new seedlings were recorded in the plots this year. Of the 127 seedlings from 2004, 27% (34) died in 2005. Seedling survival rate for 2004 was 73%, 90 seedlings from 2004 made it to 2005.
- One silversword flowered in the plots this year. The least number of silverswords flowering in the plots was 0 in 1984 and 1998. The most ever was 22 in 2004.
- The silversword that flowered this year was >20 cm in diameter, it was 21 cm.
- 40 of the silverswords died without flowering in the plots this year. The bulk of these, 85% (34), were seedlings from last year. 7.5% (3) were <5 cm, and 7.5% (3) were 5-20 cm.
- Of the 265 silverswords in the plots, 18% (48 of 265) have been in the plots since 1982. In other words, 18% of the silverswords in plots are at least 23 years old.
- The smallest of these 23 year old silverswords is 3 cm in diameter, the largest is 33 cm in diameter.
- We still don't know how long silverswords live, all of the silverswords that have flowered in the plots were alive when the plots were established in 1982.

FLOWERING TOTALS 1934-2005

Haleakala National Park: Annual Silversword Flowering Census



PLOT TOTALS 1982-2005



Size Class	1982	1983	1984	1985	1986	1987	1988	1989	1990	1992	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
X (<5 cm)	157	106	190	108	142	157	118	260	185	132	110	71	87	86	83	72	56	45	159	143
O (5-20 cm)	187	203	198	190	200	177	168	173	245	174	143	151	134	128	98	94	90	94	86	86
* (>20 cm)	54	71	66	65	62	68	70	55	78	56	52	61	61	48	56	57	57	50	34	35
Flowered	16	5	0	2	3	6	1	20	4	1	5	9	0	1	1	3	6	1	22	1
Total #	414	385	454	365	407	408	357	508	512	363	310	292	282	263	238	226	209	190	301	265

Images from 2005 Silversword Census



A giant flowering silversword at the summit. Compare the number of "flowers" on this silversword with the small one to the right.



A small flowering silversword, on Puu Naue, one of the many small flowering silverswords observed this year.



Silversword Census Crew 2005

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