

2008 ANNUAL HALEAKALA SILVERSWORD CENSUS

Forest Starr, Kim Starr, and Lloyd Loope

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. This year we were assisted by Paul Krushelnycky. Below are the results from the 2008 silversword census and plot monitoring. In short, it was a relatively large flowering year (1148 blooms), and a down year in the plots (12% decline).

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.

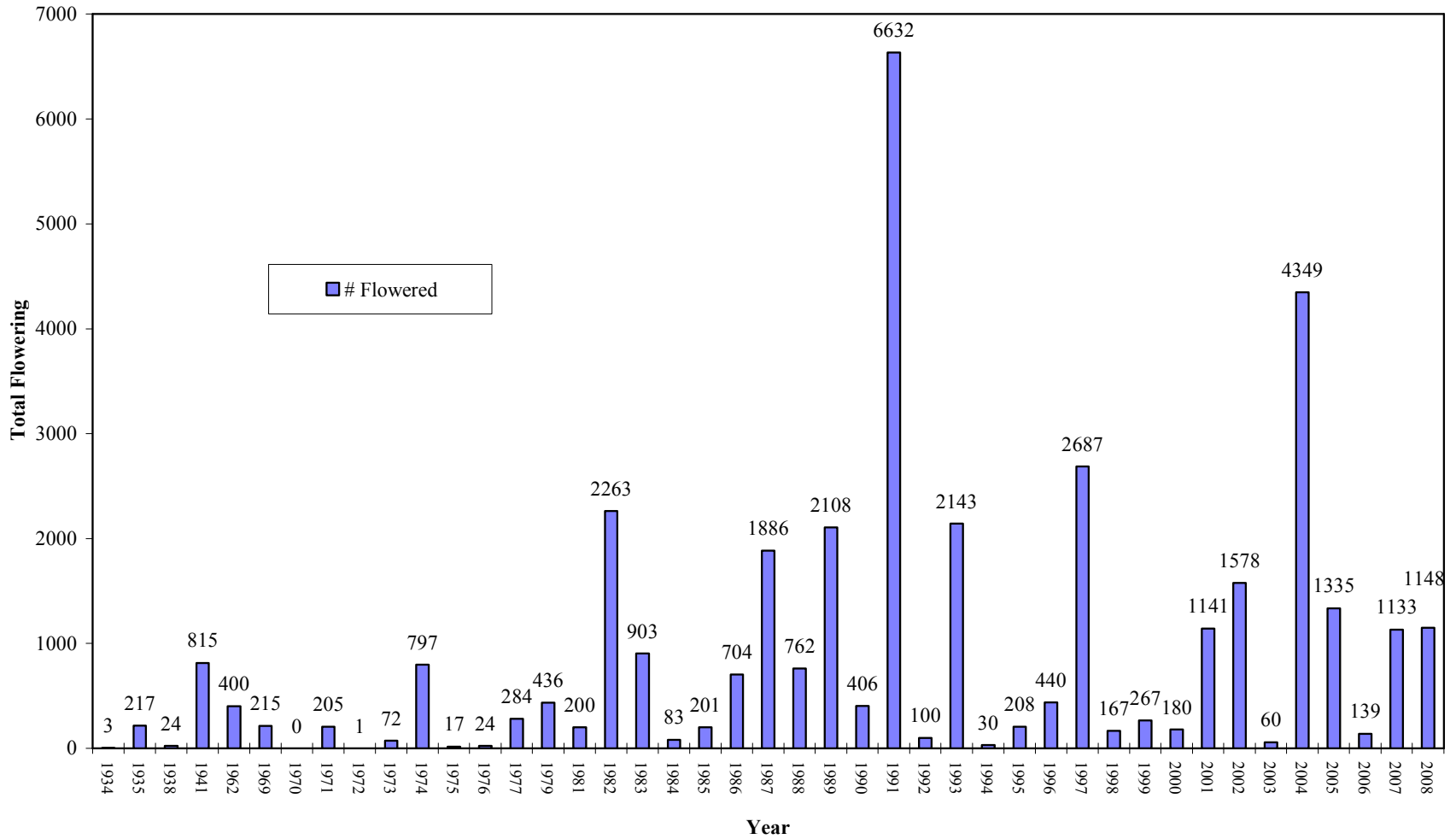
- 2008 was a relatively large flowering year, with 1148 blooms. 2008 was the 10th largest year out of 41 years on record.
- The largest year ever was 1991 with 6,632 blooms. The smallest year ever was 1970 with 0 blooms. There were 1133 blooms in 2007.
- We still don't know what triggers the silverswords to bloom, with mass events in some years, and hardly any flowering at all in other years.

PLOTS

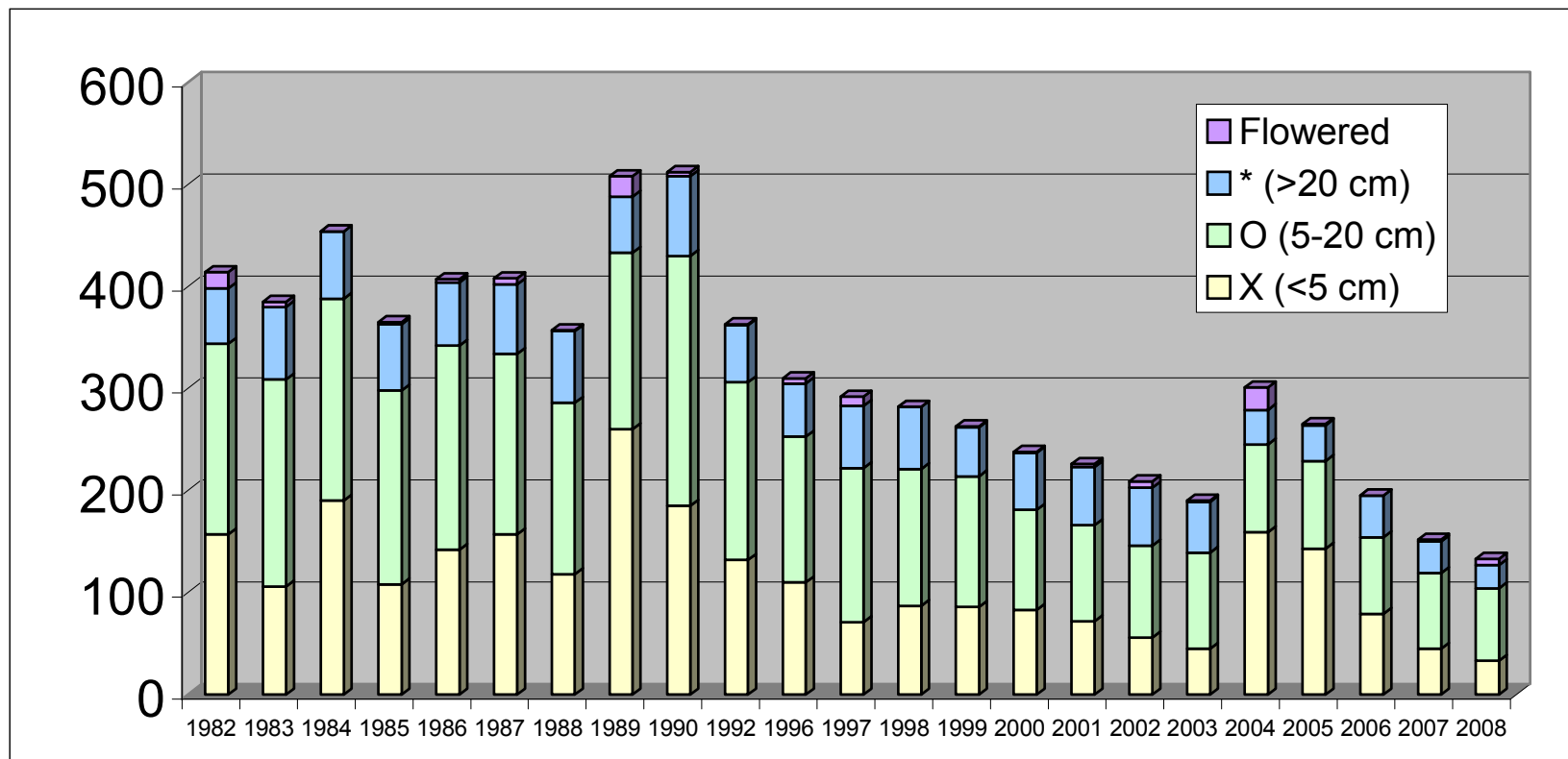
The 11 silversword plots attempt to monitor a representative sample of the silverswords by mapping individual silverswords, measuring live crown diameter of each silversword, and noting life history changes (seedlings, flowered, death). The silversword plots were established in 1982 and have been monitored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

- 2008 was another year of decline. The total number of silverswords in the plots declined 12% (18) from last year, from 152 to 133. The total number of silverswords in the plots dropped by 68% (281) from 1982, from 414 to 133.
- No new seedlings were recorded in the plots this year, or last year. Survival for the 3 seedlings from 2006 is now 0% (none still alive), for the 25 seedlings from 2005 survival has been 20% (5 still alive), and for the 127 seedlings from 2004 survival has been about 13% (16 still alive).
- Of the seedlings still alive, most are still small in size (<5 cm), though 2 of the 2004 seedlings and 1 of the 2005 seedlings are now in the 5-20 cm size class, all of which occur in close proximity to each other in the same plot.
- 6 silverswords flowered in the plots this year. The most flowering silverswords ever recorded in the plots was 22 in 2004. Two of this year's bloomers were first recorded from the plots in 1982 (26 yrs. old), single flowering plants were first recorded from the plots in 1984 (24 yrs.), 1986 (22 yrs.), 1989 (19 yrs.), and 1996 (12 yrs.).
- 35% (47 of 133) of the silverswords have been in the plots since 1982. In other words, 35% (47) of the silverswords in plots are at least 26 years old, the smallest of these old silverswords are 5 cm in diameter, the largest is 36 cm in diameter.

ANNUAL HALEAKALA SILVERSWORD FLOWERING CENSUS 1934-2008



PLOT TOTALS 1982-2008



Size Class	1982	1983	1984	1985	1986	1987	1988	1989	1990	1992	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
X (<5 cm)	157	106	190	108	142	157	118	260	185	132	110	71	87	86	83	72	56	45	159	143	79	45	33
O (5-20 cm)	187	203	198	190	200	177	168	173	245	174	143	151	134	128	98	94	90	94	86	86	75	74	71
* (>20 cm)	54	71	66	65	62	68	70	55	78	56	52	61	61	48	56	57	57	50	34	35	41	31	23
Flowered	16	5	0	2	3	6	1	20	4	1	5	9	0	1	1	3	6	1	22	1	0	2	6
Total #	414	385	454	365	407	408	357	508	512	363	310	292	282	263	238	226	209	190	301	265	195	152	133

IMAGE FROM 2008 - Silverswords on Puu Kauaua with Kapalaoa Cabin in background.

