

Shaw Mountain Ice Storm Study, 1998-2002

Plot Coverage Results

Physical factors:

1. Dead wood was more abundant in Iced plots than in Control plots in 1998 ($p=.01$); this difference persisted to 2001, but became less statistically significant.
2. Leaf litter was less abundant (67%) in Iced plots than Controls (92%) in 1999 ($p=.004$), the 2nd summer after the storm.
Leaf litter returned to levels near Control levels by 2000 in plot 1 and by 2001 in plot 2.
3. Bare soil increased from a mean of 0.5% in 1998 to a mean of 3.8% in 1999 in Iced plots ($p=.18$), then fell to .78% in 2000, .54% in 2001, and .09% in 2002.
4. Bare soil was somewhat greater in Iced than in Control plots in 1998 ($p=.10$), 1999 ($p=.19$), and 2000 ($p=.24$).

Plant height and cover:

5. Herb height in Iced plots was about 2x that in Control plots in 1998 (34.5 vs. 16.8cm) and 1999; by 2002, herbs in Iced plots were shorter, and only 1.35x taller than herbs in Iced plots ($p=.26$).
6. Cover varied widely within treatment. E.g. in 2000, cover ranged from 52% (plot 2) to 88% (plot 1) in iced plots, and from 30% (plot 4) to 58% (plot 3) in Control Plots.
7. Rank order by total cover of plots within a treatment remained the same: plot 1 had greater cover than plot 2, and plot 3 had greater cover than plot 4, in every year.
8. Cover was greater in Iced plots on average, but variance was high.
9. Woody cover averaged greater in Iced plots than in Control plots, but variance was high. In 2000, the sum of individual woody species cover was 33% in Iced plots, and 10% in Control plots ($p = .0006$).
10. Woody cover was not greater overall in Iced plots than in Control plots in 2001; rather, both Iced and Control plots had more woody cover than in 1998 ($p=.10$ and $.28$, respectively).

Species richness:

11. Mean # species per 1m² quadrat was greater in Iced plots than Controls in 1999, 2000, and 2002: 12.5 vs. 9.0, 11.9 vs. 10.2, and 11.2 vs. 8.6 species, respectively (n.s.).
12. Mean number of species per 1m² quadrat became slightly greater in Control plots than in Iced plots in 2001 (n.s.).
13. There was year-to-year variation in number of species per 1m² quadrat, and patterns of variation were different for different plots.
14. Greater species richness in Iced plots in 1999, 2000, and 2002 was not due to greater numbers of woody species in 1m² quadrats.
15. There were always more species in Iced plots than Control plots at the whole-plot (400m²) scale. In 2002, Iced plots had 33% more species (58.5 vs. 44, $p=.07$).
16. Exotic species were more numerous in Iced than Control plots (mean 8 vs. 3.5 species, respectively, 2002, $p = .07$).

Species:

17. *Eupatorium rugosum* was more abundant in Iced plots in some years ($p=.07$ in 1999). It was less abundant in all plots in 2002, a dry year.
18. *Galium circaezans* was somewhat more abundant in Iced plots in 1999 and 2000.
19. *Carex pensylvanica* was more abundant in all plots in 1999. In 2001 this species was somewhat more abundant in Iced than in Control plots (19.1 vs. 10.9, $p=.21$).
20. Some forbs may have declined in abundance in Iced plots between 1998 and 2001 ($p > .24$).
18a. For example, *Osmorhiza* cover in plot 1 was 1.62, .25, .06, and .01% in 1998, 1999, 2000, and 2001, respectively. It increased to .42% in 2002.
21. Cover of graminoids, shrubs, and tree seedlings was greater in 1999 than 1998 (n.s.).
22. Shrub cover increased each year in Iced plot 1 (0.0, 4.4, 16.2, 17.8, 18.3), but did not increase in Iced plot 2 until 2002.
23. Shrub cover averaged 10.9 in Iced plots compared to 0.1 in Control plots in 2002, but Iced plot variance is still high (n.s.).
24. Exotic species cover was greater in Iced plots than Control plots ($p = .15$ in 1998, but less significant in later years), but this difference diminished in 1999 and 2000.
25. In Control plots, exotic species cover increased by small amounts most in all but one year (.06%, .14, .30, .17, .39) in the Control plots (n.s.).
26. In Iced plots, exotic species cover increased irregularly from .25% in 1998 to .66% in 2002 ($p=.18$).
27. Exotic species present in Iced plots but not present in Control plots in 2001 and 2002 were *Arctium minus*, *Berberis vulgaris*, *Chelidonium majus*, *Geranium robertianum*, *Lonicera morrowii*, *Verbascum thapsus*.
28. Some exotic species present in one or more years were not found in 2002. Species and the last year they were found are *Agrostis stolonifera* (2001), *Berberis thunbergii* (1998), *Cerastium vulgatum* (1999), *Cirsium discolor* (2001), *C. vulgare* (2001), *Epipactis helleborine* (2001), *Trifolium pratense* (1999), and *T. repens* (1999).