

Fig. A1. Histogram of locally highest upward shifts of forests at the Swiss treeline with median (dotted line) and mean (solid line) values. Graphs represent different moving window sizes: a) 500 m; b) 600 m; c) 700 m; d) 800 m; e) 900 m; f) 1000 m; g) 1100 m; h) 1200 m; i) 1500 m; j) 3000 m.

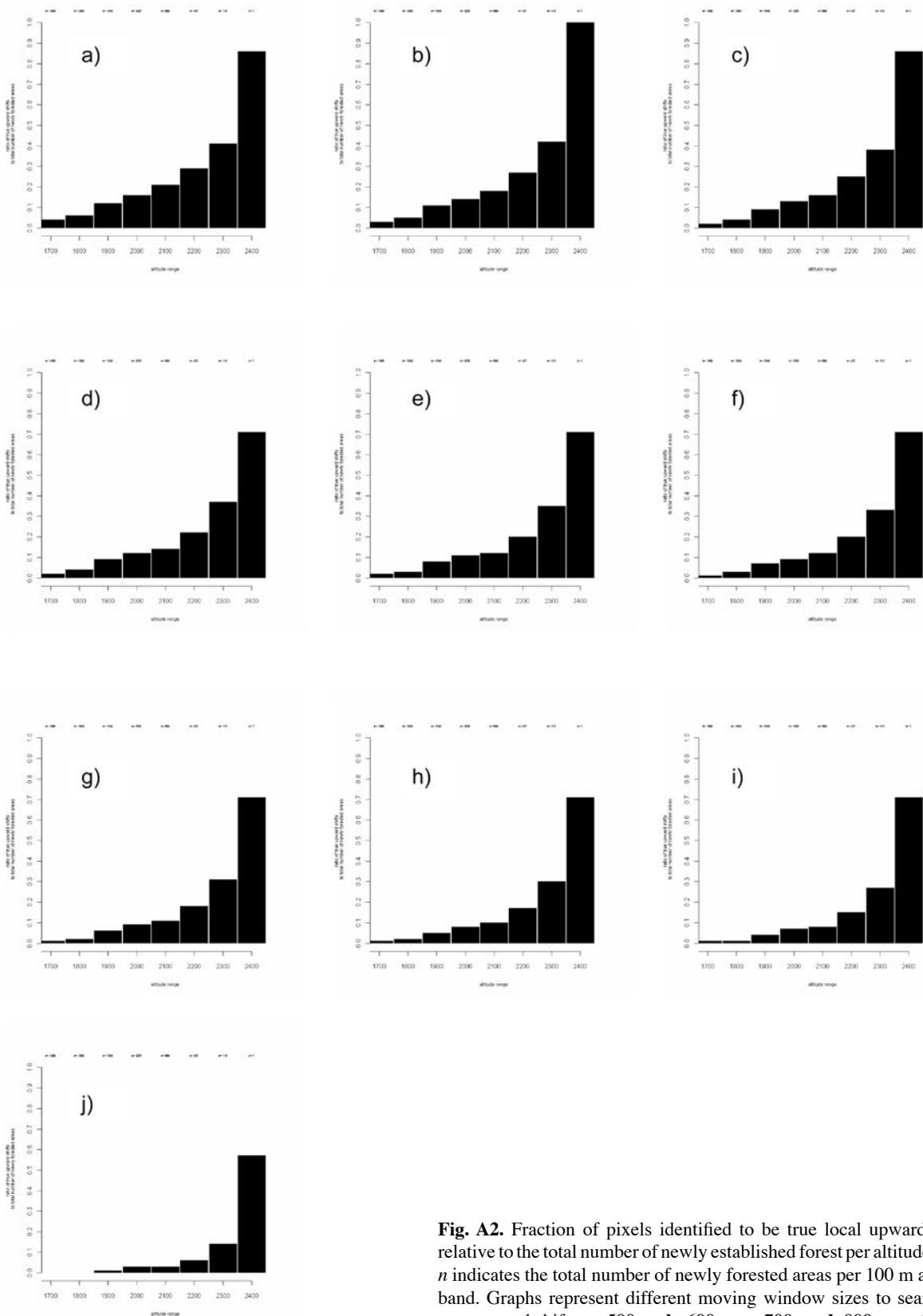


Fig. A2. Fraction of pixels identified to be true local upward shifts relative to the total number of newly established forest per altitude band. n indicates the total number of newly forested areas per 100 m altitude band. Graphs represent different moving window sizes to search for true upward shifts: **a.** 500 m; **b.** 600 m; **c.** 700 m; **d.** 800 m; **e.** 900 m; **f.** 1000 m; **g.** 1100 m; **h.** 1200 m; **i.** 1500 m; **j.** 3000 m.

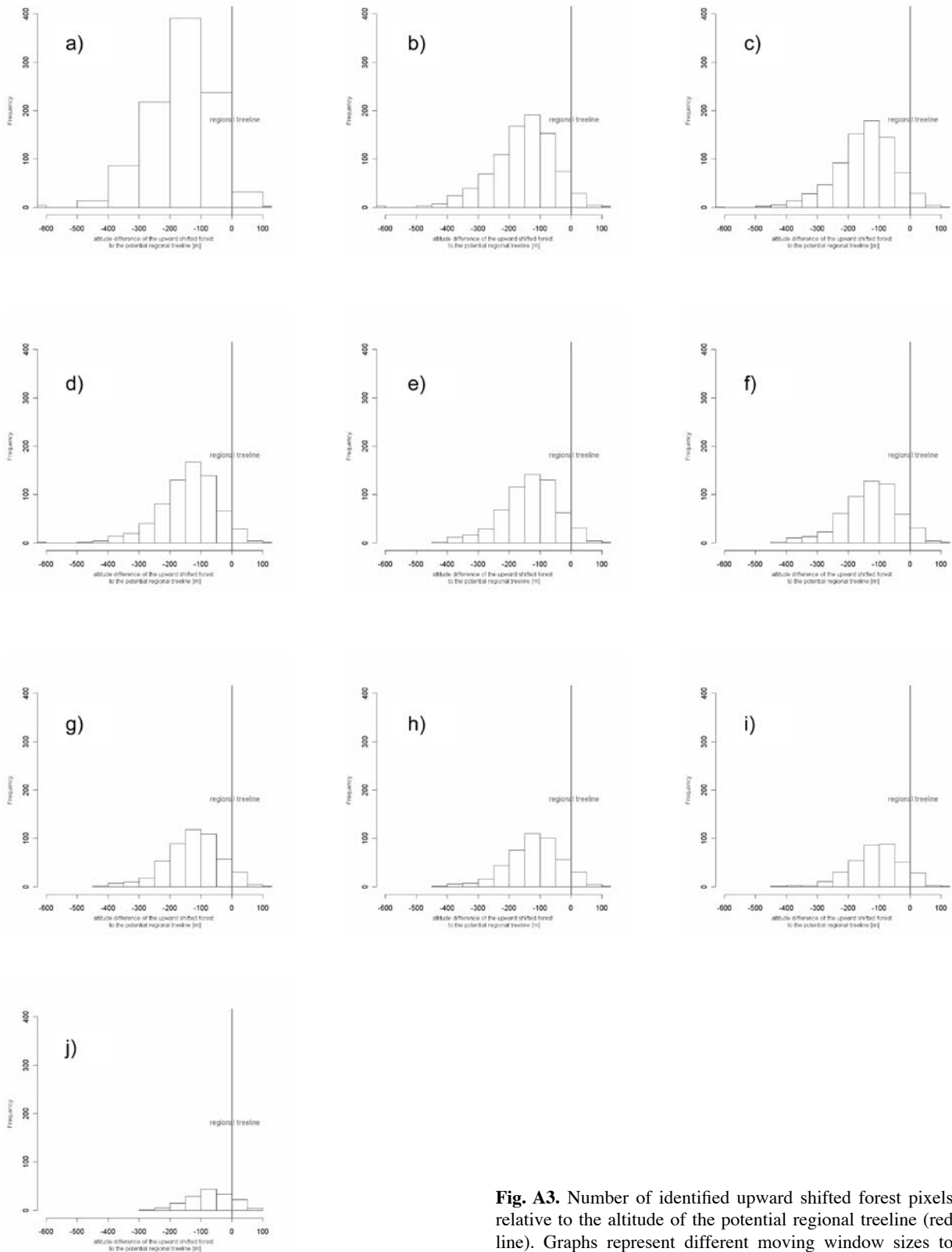


Fig. A3. Number of identified upward shifted forest pixels relative to the altitude of the potential regional treeline (red line). Graphs represent different moving window sizes to search for true upward shifts: **a.** 500 m; **b.** 600 m; **c.** 700 m; **d.** 800 m; **e.** 900 m; **f.** 1000 m; **g.** 1100 m; **h.** 1200 m; **i.** 1500 m; **j.** 3000 m.

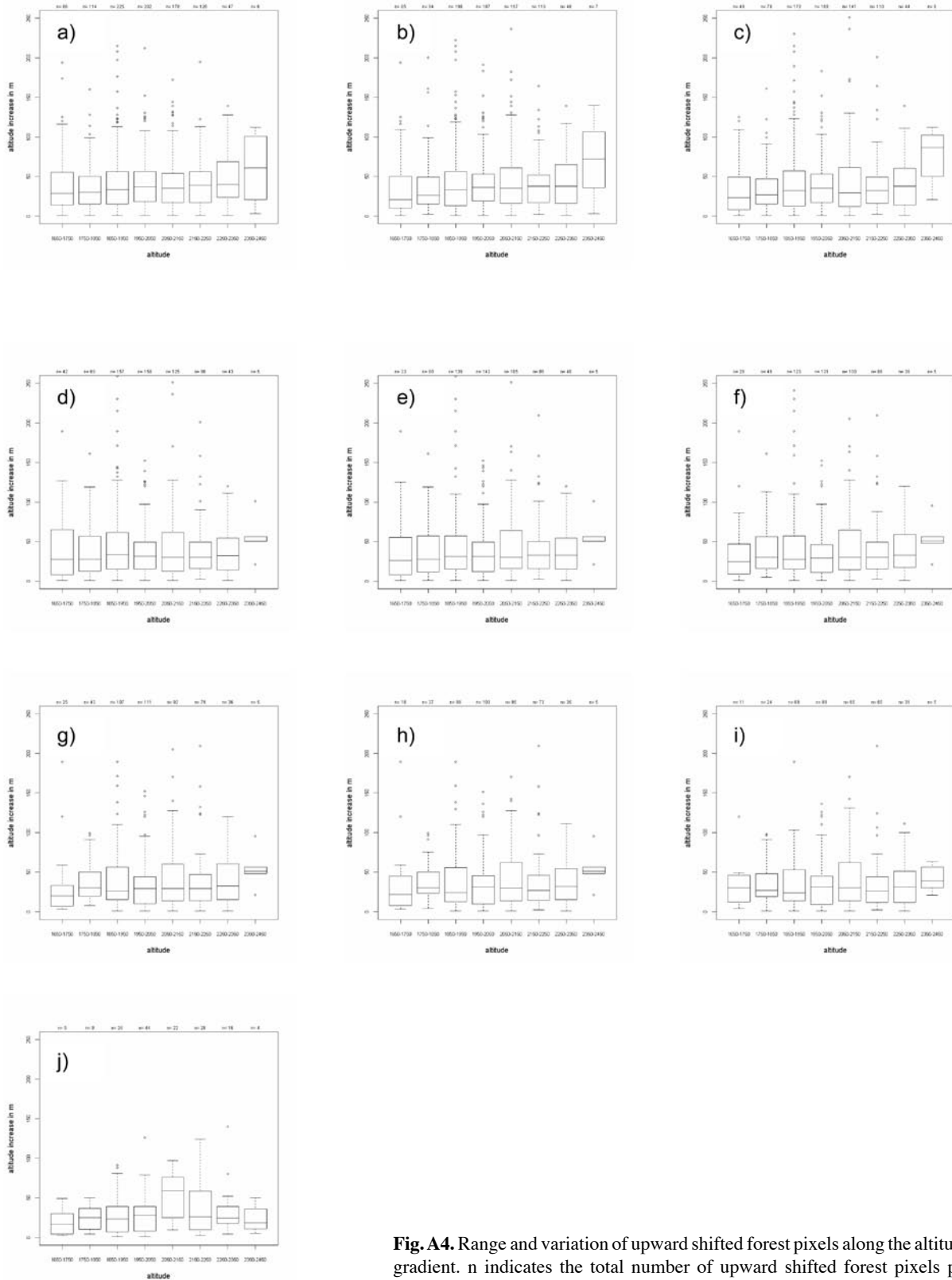


Fig. A4. Range and variation of upward shifted forest pixels along the altitude gradient. n indicates the total number of upward shifted forest pixels per altitude band. Graphs represent different moving window sizes to search for true upward shifts: **a.** 500 m; **b.** 600 m; **c.** 700 m; **d.** 800 m; **e.** 900 m; **f.** 1000 m; **g.** 1100 m; **h.** 1200 m; **i.** 1500 m; **j.** 3000 m.

Table A1. Fraction of forest pixels that shifted upward above the potential regional treeline of 1985 (representing climate change), as identified depending on the moving window size.

moving window size [m]	climate change [%]
500	2
600	2
700	3
800	4
900	4
1000	5
1100	6
1200	6
1500	8
3000	16