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Appendix A1

Changes in trapping methods during the monitoring period

During the monitoring period there were three changes in trapping methods employed to monitor *Ips typographus* and *Thanasimus formicarius* (Table A1). The type of pheromone baits were changed twice (in 2000 and 2004) and trap model once (in 2005). To evaluate the effect of the modification of the trapping methods, each time a field experiment, comparing the old and new bait/traps, was conducted.

For pheromones the old and new bait were compared on two of the five clear-cuts in each area (i.e. totally eight pairs of trap groups) (Table A1a, b). In 2000, Pheroprax was replaced by Typosan because it was not manufactured anymore. In 2004, Typosan was replaced by Norlure, and drainpipe traps with funnel traps, to harmonize the Swedish monitoring with the Norwegian monitoring (which also is switching from drainpipe to funnel traps). Both changes of baits did not influence the average catches of *I. typographus*. For *T. formicarius* the change in bait from Pheroprax to Typosan only marginally influenced the average catch while the difference in catch was a larger, but still non-significant, between the baits Typosan and Norlure.

In 2005, drainpipe traps were replaced with funnel traps to harmonize the Swedish monitoring with the Norwegian monitoring (which also had switched from drainpipe to funnel traps) (Table A1c). The drainpipe trap was the Norwegian model ‘1975’ without funnel and the funnel trap was the Norwegian model ‘Nove’ (former Beka). Drainpipe and funnel traps were compared on all five clear-cuts in each area in 2005 (i.e. 20 pairs of trap groups). The minimum distance between trap groups was above 50 m. None of the changes resulted in a significant

difference in catch for *I. typographus* or *T. formicarius* and thus no correction of trapping data was needed.

Although the difference between baits and traps were not significant, *T. formicarius* catches tended to vary more than *I. typographus* in 2004 and 2005. To evaluate the effect of these changes on our model selection procedure, we run separate analyses correcting the *T. formicarius* data in year 2004 and 2005 by the values reported above. The models selected with the corrected data and the relative importance of the variables were qualitative similar to those selected using the uncorrected data. We therefore present the raw time-series without the corrections.

In 2002, the Typosan pheromone dispensers were defect (methylbutenol had by mistake been substituted by another substance by the manufacturer). Thus, the defect dispensers were successively compared with functioning ones in a separate field experiment. The average catch of *I. typographus* was estimated to be 7.4 times higher with functioning dispensers ($p = 0.001$, pair-wise t-test, $n = 8$). Thus, the catches in the monitoring from this year were multiplied with 7.4 to correct for the malfunctioning baits. No *T. formicarius* data is available for this year. To evaluate the effect of this correction on the model we run separate analyses excluding the year 2002 and 2003. We had to exclude also 2003 because population growth rate computation involve always two years. The models selected were qualitative similar to those selected using the corrected data and we therefore present the complete time-series.

Table A1. Average changes in catch of *Ips typographus* and *Thanasimus formicarius* as a result of the changes of baits and traps that were conducted during the monitoring period. The results are based on comparative field experiments. p-value from pair-wise t-test ($n = 8$ for bait and $n = 20$ for trap comparison, respectively).

	Year	Change	Change in catch of *I. typographus* (%)	p	Change in catch of *T. formicarius* (%)	p
(a)	2000	Pheromone bait changed from Pheroprax to Typosan	+0.5	0.95	+3.1	0.94
(b)	2004	Pheromone bait changed from Typosan to Norlure	−6.7	0.56	+44.8	0.31
(c)	2005	Trap changed from drainpipe to funnel	+20.7	0.25	−45.9	0.19