Supplemental material for

"Structural and Tree Species Diversification as a Challenging Task in Forests of the Air-Polluted Jizera Mountains, Czech Republic", by Ivan Kuneš, Martin Baláš, and Pavel Lánský, published in *Mountain Research and Development* 40(2), 2020. (See https://bioone.org/toc/mred/40/2)

Figure S1 The Jizera Mountains in the early 1990s. (A) Dead forests in the Jizera Mountains, ravaged by air pollution and insect pest attacks. (B) These forests on the upper plateau were mostly clear-felled. The sites were colonized and then dominated by the expansive perennial grass *Calamagrostis villosa*. (Photos by Petr Navrátil)

Figure S2 (A) The plantation of new-generation rowan saplings in the newly established diversification center on the upper plateau of the Jizera Mountains in autumn 2007. (B) The same rowan plantation in 2016. (Photos by Ivan Kuneš)

Figure S3 (A) A new-generation sapling of sycamore maple during the first vegetation period after outplanting on the upper plateau, in 2005. (B) The same plantation nine years later. (C) In 2013, a fertilized 7-year-old plantation of speckled alder had outcompeted Colorado blue spruce that was 9 years older. (Photo A by Ivan Kuneš, photos B and C by Martin Baláš)

Figure S4 (A) Silver firs growing in one of the diversification centers in 2019. (B) Silver fir in a tree guard. The deformation of the wire mesh was caused by snow. (Photos by Ivan Kuneš)

Figure S5 (A) Newly established diversification center with European beech introduced to the spruce stand in 2007. (B) Interior of the same center in 2018. (Photo A by Ivan Kuneš, photo B by Martin Baláš)

Figure S6 (A) One of the microcenters on the upper plateau in 2019. The diversification centers and microcenters are always situated close to forest roads or extraction lines to facilitate inspection and maintenance. (B) Interplanting corridor with European beech connecting the diversification centers, in 2018. (Photo A by Ivan Kuneš, photo B by Martin Baláš)

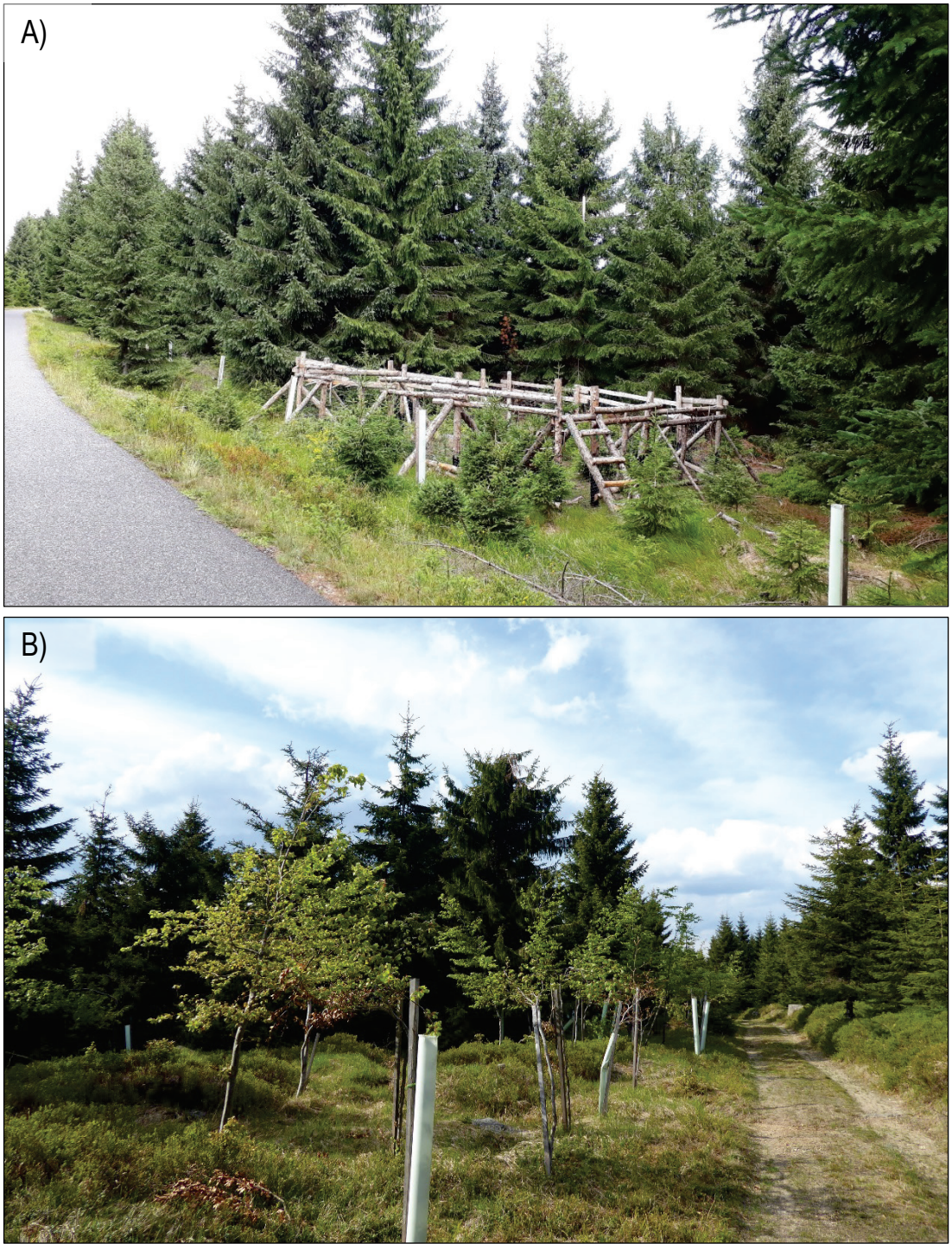

Figure S7 Polyvinylchloride (PVC) grafting tape has proven to be an optimal choice to fasten the saplings to the poles, because it is flexible enough to enable the thickening of a tree stem, even when the clamp fastening a tree to the support pole is tightened. Adequately tightened eight-form clamps are important to maintain their position on the support pole and to prevent the trees from damage by rubbing (wind abrasion). If the length of the support pole and the size of a sapling make it possible, the upper clamp should be tied ca 20 cm beneath the terminal bud of a tree. The lower clamp is tied (depending on the size of sapling) approximately 40–60 cm below the upper clamp. For extra large saplings, the upper clamp must be tied approx. 10 cm below the top of a support pole. (Photo by Martin Baláš)

Figure S8 Installation of support poles in a newly established center in 2007. The length of the support (thrust) poles for planting stock up to 120 cm in height should be at least 150 cm. If saplings taller than 120 cm are planted, the support poles should be at least 180 cm long. The support poles for stabilization of the 170–180 cm tall plastic shelters need to be at least 200 cm long. The minimum cross-sectional dimensions of the support poles made of sawn wood are 4.5 × 4.5 cm. The support poles must be produced from seasoned (dried) sawn timber, since the seasoned timber does not split as easily when rammed into the ground. The hardwood (oak, ash, black locust) wood is preferred for tree support poles because of its durability. All types of poles must be driven at least 30 cm into the ground to provide sufficient support. (Photo by Ivan Kuneš)

Figure S9 One possible construction applicable for fencing of the game-proof exclosures in the diversification centers. The fencing should be approx. 190 cm tall to be red-deer safe. The wooden frame of the fencing consists of main vertical stakes ca 240 cm in height, embedded at least 40–50 cm into the ground (depending on the soil) and supported by raking shores. These main vertical stakes are no more than 3 m apart from each other and carry two rows of horizontal beams. The lower horizontal beams are nailed to the main vertical stakes alternately at 150 cm and 160 cm above the ground. Since they are carrying the wire chain link fabric, the lower beams are in the middle of the span supported by vertical props. A forestry wire mesh with a weaving width of 160 cm, spring steel line wires (at the top and bottom) of at least 2.8 mm in diameter and mesh wire of at least 2 mm in diameter can be used for the fencing. The upper horizontal beam, heightening the whole construction, is nailed to the main vertical stakes in the height of approx. 190 cm above the ground level. A lap (min. 10 cm) of all construction segments from joint points in the frame construction is necessary.