

Figure S1. The construction of a highway next to the study area (left) has increased the already pre-existing tendency of the water erosion to move sediments along the slope, therefore in 2019 a containment structure was built to slow down the ongoing process in the more pressing gully; however, sedimentation processes continue to occur alongside the highway on many other linear erosion forms (right).



Figure S2. Location of the sampling points in each rooting for the measurement of soil characteristics.

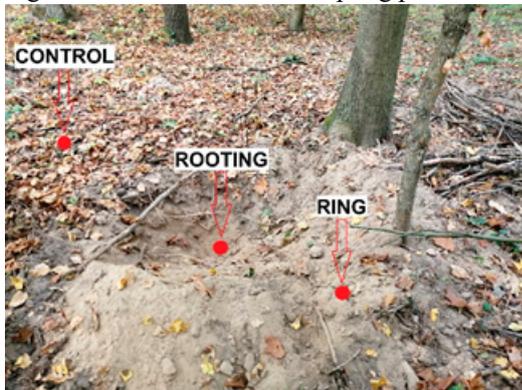


Table S1: Description of soil profiles in 6 deep rootings in the study area.

| Sample | Location | Soil horizon | Depth (cm) | Color | Texture |
|---------|----------|--------------|------------|---------------|---------------|
| 1 | Rooting | A | 0–37 | Grayish brown | Sandy loam |
| | | AB | 37–69 | Mixed | Sandy loam |
| | | B | 69–100 | Redish | Loamy sand |
| | Ring | A | 0–58 | Grayish brown | Loam |
| | | AB | 58–100 | Brownish red | Sandy loam |
| | Control | A | 0–16 | Grayish-brown | Sandy loam |
| | | AB | 16–48 | Mixed | Sandy loam |
| | | B | 48–100 | Redish | Sandy loam |
| | 2 | Rooting | A | 0–26 | Grayish brown |
| AB | | | 26–68 | Mixed | Sandy loam |
| B | | | 68–91 | Redish | Loamy sand |
| C | | | 91–100 | White | Sand (fine) |
| Ring | | A | 0–39 | Gray-brown | Sandy loam |
| | | AB | 39–71 | Mixed | Sandy loam |
| | | B | 71–100 | Redish | Sandy loam |
| Control | | A | 0–36 | Dark brown | Sandy loam |
| | | B | 36–86 | Red | Sandy loam |
| | C | 86–100 | White | Sand | |
| 3 | Rooting | A | 0–28 | Grayish brown | Sandy loam |
| | | B | 28–79 | Whiteish red | Sandy loam |

| | | | | | | |
|----------------|---------|----------------|--------|----------------|---------------|------------|
| | Ring | C | 79–100 | White | Sand (fine) | |
| | | A ₁ | 0–25 | Grayish brown | Loamy sand | |
| | | A ₂ | 25–62 | Light brown | Loamy sand | |
| | | B | 62–100 | Light red | Sandy loam | |
| | Control | A | 0–34 | Grayish brown | Loamy sand | |
| | | AC | 34–47 | Whiteish brown | Loamy sand | |
| | | BC | 47–82 | Whiteish red | Sandy loam | |
| | | B | 82–100 | Red | Sandy clay | |
| | 4 | Rooting | A | 0–25 | Grayish brown | Sandy loam |
| | | | AB | 25–41 | Redish brown | Sandy loam |
| B | | | 41–75 | Red | Sandy clay | |
| C ₁ | | | 75–86 | White | Sand | |
| C ₂ | | | 86–100 | Grayish white | Sand (fine) | |
| Ring | | A | 0–22 | Grayish brown | Sandy loam | |
| | | AB | 22–44 | Redish brown | Sandy loam | |
| | | BC | 44–62 | Whiteish red | Sandy clay | |
| | | C | 62–100 | White | Clay | |
| Control | | A | 0–36 | Grayish brown | Sandy loam | |
| | | AB | 36–75 | Redish brown | Sandy loam | |
| | | B | 75–100 | Red | Sandy clay | |

Table S2: Description of soil profiles in 6 deep rootings in the study area.

| Sample | Location | Soil horizon | Depth (cm) | Color | Texture |
|--------|----------|--------------|------------|----------------|------------|
| 5 | Rooting | A | 0–13 | Dark brown | Sandy loam |
| | | AB | 13–31 | Redish brown | Sandy loam |
| | | B | 31–58 | Red | Sandy clay |
| | | BC | 58–78 | Whiteish red | Loamy sand |
| | | C | 78–100 | White | Sand |
| | Ring | A | 0–39 | Brown | Sandy loam |
| | | AB | 39–66 | Redish brown | Sandy loam |
| | | B | 66–89 | Red | Sandy clay |
| | | BC | 89–100 | Whiteish red | Loamy sand |
| | Control | A | 0–32 | Grayish brown | Sandy loam |
| | | AB | 32–47 | Redish brown | Loamy clay |
| | | BC | 47–66 | Whiteish red | Sandy clay |
| | | B | 66–100 | Red | Clay |
| 6 | Rooting | AC | 0–28 | Whiteish brown | Loamy sand |
| | | A | 28–55 | Brown | Sandy loam |

| | | | | | |
|--|---------|----------------|--------|----------------|-------------|
| | | AB | 55–84 | Redish brown | Sandy loam |
| | | B | 84–100 | Red | Sandy loam |
| | Ring | AC | 0–71 | Whiteish brown | Loamy sand |
| | | A | 71–100 | Brown | Sandy loam |
| | Control | A ₁ | 0–18 | Light brown | Sandy loam |
| | | C | 18–61 | White | Sand (fine) |
| | | A ₂ | 61–72 | Brown | Sandy loam |
| | | B | 72–100 | Red | Sandy loam |