Corrigendum

Corrigendum: Comment on “Predicting event soil loss from bare plots at two Italian sites” by Bagarello et al. 2013

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A B S T R A C T
Eq. 11 in Kinnell (2014) was incorrect but the replacement provided by Bagarello et al. (2014) failed to take account of the context of modelling soil loss in terms of runoff and sediment concentration. The correct equation is presented. An additional equation is provided to clarify the discussion that followed Eq. 11 in Kinnell (2014).

As noted by Bagarello et al. (2014), Eq. 11 in Kinnell (2014) was incorrect. They suggested that it should be

\[ b_1(Q_R E I^{30})^{c_1} = b_1(V_e E I^{30} P_e^{-1})^{c_1} \]  

where \( b_1 \) and \( c_1 \) are the empirical coefficients, \( Q_R \) is the runoff ratio, \( E \) is the storm kinetic energy, \( I^{30} \) is the maximum 30-minute intensity, \( V_e \) is the runoff amount, and \( P_e \) is the rainfall amount. While their Eq. (12) was mathematically correct, Eq. 11 in Kinnell (2014) was presented in the context of modelling soil loss in terms of runoff and sediment concentration with the expression for sediment concentration enclosed in square brackets. Consequently, Eq. 11 in Kinnell (2014) should have been written as

\[ b_1(Q_R E I^{30})^{c_1} = V_e [b_1(V_e E I^{30} P_e^{-1})^{c_1}] \]

The term \( V_e^{c_1-1} \) was inadvertently omitted from Eq. 11 in Kinnell (2014). Eq. (13) is a mathematically correct rearrangement of Eq. (12).

Eq. (13) indicates that sediment concentration varies nonlinearly with both the runoff amount and the product of the kinetic energy per unit quantity of rain \( E P_e^{-1} \) and \( I^{30} \). The relevance of the discussion about the effect of runoff on sediment concentration that followed Eq. 11 in Kinnell (2014) is more obvious from Eq. (13) than Eq. (12). However, the discussion in Kinnell (2014) about \( A_e P_e (E I^{30})^{-1} \) increasing with \( V_e \) to a power of 1.48 on 22 m long plots at Sparacia focused on

\[ b_1(Q_R E I^{30})^{c_1} = V_e [b_1(V_e E I^{30} P_e^{-1})^{c_1}] \]

where \( c_2 = 0.48 \) on 22 m long plots at Sparacia, being an alternative to Eq. (13). Given that \( c_2 \) was greater than \( c_1 - 1 \) at Sparacia, the conclusion by Kinnell (2014) that runoff had a significant effect on sediment concentration at Sparacia followed more from Eq. (14) than Eq. (13).

References
