

**A11. Depleted Below Dark Surface.** For use in all LRRs, except for W, X, and Y; for testing in LRRs W,X, and Y. A layer with a depleted or gleyed matrix that has 60 or more percent chroma of 2 or less, starting within 30 cm (12 inches) of the soil surface, and having a minimum thickness of either: a. 15 cm (6 inches), or b. 5 cm (2 inches) if the 5 cm consists of fragmental soil material. Loamy or clayey layer(s) above the depleted or gleyed matrix must have value of 3 or less and chroma of 2 or less. Any sandy material above the depleted or gleyed matrix must have value of 3 or less and chroma of 1 or less, and at least 70 percent of the visible soil particles must be covered, coated, or similarly masked with organic material.

**User Notes:** This indicator often occurs in Mollisols but also applies to soils with umbric epipedons and dark colored ochric epipedons. For soils with dark colored epipedons more than 30 cm (12 inches) thick, use Indicator A12. Redox concentrations including iron-manganese soft masses and/or pore linings are required in soils with matrix colors of 4/1, 4/2, and 5/2. A, E, and calcic horizons may have low chromas and high values and may therefore be mistaken for a depleted matrix; however, they are excluded from the concept of depleted matrix unless the soil has common or many distinct or prominent redox concentrations occurring as soft masses or pore linings.

**A12. Thick Dark Surface.** For use in all LRRs. A layer at least 15 cm (6 inches) thick with a depleted or gleyed matrix that has 60 percent or more chroma of 2 or less and starting 30 cm (12 inches) below the surface. The layer(s) above the depleted or gleyed matrix must have value of 2.5 or less and chroma of 1 or less to a depth of at least 30 cm (12 inches) and value of 3 or less and chroma of 1 or less in any remaining layers above the depleted or gleyed matrix. Any sandy material above the depleted or gleyed matrix must have at least 70 percent of the visible soil particles covered, coated, or similarly masked with organic material.

**User Notes:** This indicator applies to soils that have a black layer 30 cm (12 inches) or more thick and have value of 3 or less and chroma of 1 or less in any remaining layers directly above a depleted matrix or gleyed matrix. This indicator is most often associated with overthickened soils in concave landscape positions. Redox concentrations including iron-manganese soft masses and/or pore linings are required in soils with matrix colors of 4/1, 4/2, and 5/2. A, E, and calcic horizons may have low chromas and high values and may therefore be mistaken for a depleted matrix; however, they are excluded from the concept of depleted matrix unless the soil has common or many distinct or prominent redox concentrations occurring as soft masses or pore linings.

**F3. Depleted Matrix.** For use in all LRRs, except for W, X, and Y. A layer that has a depleted matrix with 60 percent or more chroma of 2 or less and that has a minimum thickness of either: a. 5 cm (2 inches) if the 5 cm is entirely within the upper 15 cm (6 inches) of the soil, or b. 15 cm (6 inches), starting within 25 cm (10 inches) of the soil surface.

**User Notes:** Redox concentrations, including iron manganese soft masses and/or pore linings, are required in soils with matrix colors of 4/1, 4/2, and 5/2. A, E, and calcic horizons may have low chromas and high values and may therefore be mistaken for a depleted matrix; however, they are excluded from the concept of depleted matrix unless the soil has common or many distinct or prominent redox concentrations occurring as soft masses or pore linings. The low-chroma matrix must be the result of wetness and not a relict or parent material feature.

**F6. Redox Dark Surface.** For use in all LRRs, except for LRRs W, X, and Y; for testing in LRRs W, X, and Y. A layer that is at least 10 cm (4 inches) thick, is entirely within the upper 30 cm (12 inches) of the mineral soil, and has: a. Matrix value of 3 or less and chroma of 1 or less and 2 percent or more distinct or prominent redox concentrations occurring as soft masses or pore linings, or b. Matrix value of 3 or less and chroma of 2 or less and 5 percent or more distinct or prominent redox concentrations occurring as soft masses or pore linings.

**User Notes:** Redox concentrations in mineral soils that are high in content of organic matter and have a dark surface layer commonly are difficult to see. The organic matter "masks" some or all of the concentrations that may be present. Careful examination is required in order to see what are often brownish "mottles" in the darkened materials. In some instances, drying of the samples makes the concentrations (if they occur) easier to see. Dried colors, if used, need to have matrix chromas of 1 or 2, and the redox concentrations need to be distinct or prominent. In soils that are wet because of subsurface saturation, the layer directly below the dark epipedon should have a depleted or gleyed matrix. Soils that are wet because of ponding or a shallow perched layer of saturation may not always have a depleted/gleyed matrix below the dark surface layer. It is recommended that delineators evaluate the hydrologic source and examine and describe the layer below the dark colored epipedon when applying this indicator. Redox concentrations, including ironmanganese soft masses and/or pore linings, are required in soils with matrix colors of 4/1, 4/2, and 5/2. A, E, and calcic horizons may have low chromas and high values and may therefore be mistaken for a depleted matrix; however, they are excluded from the concept of depleted matrix unless the soil has common or many distinct or prominent redox concentrations occurring as soft masses or pore linings.

**F7. Depleted Dark Surface.** For use in all LRRs, except for W, X, and Y; for testing in LRRs W, X, and Y. Redox depletions with value of 5 or more and chroma of 2 or less in a layer that is at least 10 cm (4 inches) thick, is entirely within the upper 30 cm (12 inches) of the mineral soil, and has: a. Matrix value of 3 or less and chroma 1 or less and 10 percent or more redox depletions, or b. Matrix value of 3 or less and chroma of 2 or less and 20 percent or more redox depletions.

**User Notes:** Care should be taken not to mistake mixing of an E or calcic horizon into the surface layer for depletions. The "pieces" of E and calcic horizons are not redox depletions. Knowledge of local conditions is required in areas where E and/or calcic horizons may be present. In soils that are wet because of subsurface saturation, the layer directly below the dark surface layer should have a depleted or gleyed matrix. Redox depletions should have associated microsite redox concentrations that occur as Fe pore linings or masses within the depletion(s) or surrounding the depletion(s).