CLAIMS:

1. A mineral complex comprising about 40 wt.% to about 60 wt.% SiO_2, about 6 wt.% to about 16 wt.% Fe_2O_3, about 4 wt.% to about 12 wt.%. CaO, and about 2 wt.% to about 8 wt.% MgO.

2. The mineral complex of claim 1, wherein the mineral complex comprises about 47 wt.% to about 54 wt.% SiO_2.

3. The mineral complex of claim 1 or 2, wherein the mineral complex comprises about 9 wt.% to about 15 wt.% Fe_2O_3.

4. The mineral complex of any of claims 1-3, wherein the mineral complex comprises about 6 wt.% to about 10 wt.% CaO.

5. The mineral complex of any of claims 1-4, wherein the mineral complex comprises about 4 wt.% to about 7 wt.% MgO.

6. The mineral complex of any of claims 1-5, wherein the mineral complex comprises about 47 wt.% to about 54 wt.% SiO_2, about 9 wt.% to about 15 wt.% Fe_2O_3, about 6 wt.% to about 10 wt.% CaO, and about 4 wt.% to about 7 wt.% MgO.

7. The mineral complex of any of claims 1-5, wherein the mineral complex comprises about 48 wt.% to about 53 wt.% SiO_2, about 10 wt.% to about 14 wt.% Fe_2O_3, about 6 wt.% to about 9 wt.% CaO, and about 4 wt.% to about 6 wt.% MgO.

8. The mineral complex of any of claims 1-5, wherein the mineral complex comprises about 49 wt.% to about 53 wt.% SiO_2, about 9 wt.% to about 12 wt.% Fe_2O_3, about 7 wt.% to about 9 wt.% CaO, and about 5 wt.% to about 6 wt.% MgO.

9. The mineral complex of any of claims 1-5, wherein the mineral complex comprises about 47 wt.% to about 49 wt.% SiO_2, about 12 wt.% to about 15 wt.% Fe_2O_3, about 8 wt.% to about 10 wt.% CaO, and about 5 wt.% to about 7 wt.% MgO.

10. The mineral complex of any of claims 1-9, wherein the mineral complex further comprises Al_2O_3, and wherein the Al_2O_3 is present at less than about 16 wt.%.

11. The mineral complex of any of claims 1-9, wherein the mineral complex further comprises about 12 wt.% to about 15 wt. % Al_2O_3.

12. The mineral complex of any of claims 1-11, wherein the mineral complex further comprises about 1 wt.% to about 4 wt.% Na_2O.

13. The mineral complex of any of claims 1-12, wherein the mineral complex further comprises at least one rare earth element selected from the group consisting of scandium, yttrium, lanthanum, cerium praseodymium, neodymium, promethium, samarium, europium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, ytterbium, and lutetium.

14. The mineral complex of any of claims 1-13, wherein the mineral complex further comprises at least one of the following: K_2O, Cr_2O_3, TiO_2, MnO, P_2O_5, SrO, or BaO.

15. The mineral complex of any of claims 1-14, wherein at least 85% of the mineral complex has an average particle size of about 200 to about 400 mesh.

16. The mineral complex of any of claims 1-14, wherein at least 85% of the mineral complex has an average particle size of about 10 to about 200 mesh.

17. The mineral complex of any of claims 1-14, wherein at least 85% of the mineral complex has an average particle size of about 400 to about 6000 mesh.

18. The mineral complex of any of claims 1-14, wherein at least 95% of the mineral complex has an average particle size of about 400 to about 6000 mesh.

19. A device for the delayed release of a mineral complex comprising enclosing the mineral complex of any of claims 1-14 within a material which provides for the controlled release of the mineral complex when the device is exposed to an aqueous environment.

20. The device of claim 19, wherein the material is a cellulosic material.

21. The device of claim 19, wherein the material comprises at least one perforation.

22. The device of claim 19, wherein at least about 85% of the mineral complex has an average particle size from about 10 to about 6000 mesh.

23. A mineral complex comprising about 46 wt.% to about 50 wt.% SiO_2, about 12 wt.% to about 14 wt.% Fe_2O_3, about 8 wt.% to about 10 wt.% CaO, about 5 wt.% to about 7 wt.% MgO, about 14 wt.% to about 16 wt. % Al_2O_3, and about 1 wt.% to about 4 wt.% Na_2O.

24. The mineral complex of claim 23, wherein at least 85% of the mineral complex has an average particle size of about 200 to about 400 mesh.

25. The mineral complex of claim 23, wherein at least 85% of the mineral complex has an average particle size of about 10 to about 200 mesh.

26. The mineral complex of claim 23, wherein at least 85% of the mineral complex has an average particle size of about 400 to about 6000 mesh.

27. A composition comprising a binder and a mineral complex comprising about 40 wt.% to about 60 wt.% SiO_2, about 6 wt.% to about 16 wt.% Fe_2O_3, about 4 wt.% to about 12 wt.%. CaO, and about 2 wt.% to about 8 wt.% MgO.

28. The composition of claim 27, wherein the binder is an organic material.

29. The composition of claim 27 or 28, wherein at least about 85% of the mineral complex has an average particle size from about 10 to about 6000 mesh.

30. The composition of any of claims 27-29, wherein the composition is in the form of at least one pellet.

31. The composition of claim 30, wherein the pellet has an average diameter of from about 0.1 mm to about 10 mm.

32. The composition of any of claims 27-29, wherein the composition is in the form of a plurality of pellets.

33. The composition of claim 32, wherein each pellet has an average diameter of from about 0.1 mm to about 10 mm.

34. The composition of any of claims 27-33, wherein the binder provides for the extended release of mineral complex from the composition when the composition is exposed to a water-containing environment.

35. The composition of claim 27, wherein the binder is selected from at least one of the group consisting of sulfur, wax, polymer, oil, urea-formaldehyde, plant starches, protein gels, glues, gumming compositions, humic, crystallizing compounds, gelling clays, synthetic gel-forming compounds, and mixtures thereof.

36. The composition of any of claims 27-35, wherein the mineral complex is present in the composition in an amount ranging from about 50 wt.% to about 99.5 wt.% of the composition.

37. The composition of any of claims 27-36, wherein the composition further comprises a fertilizing agent.

38. The composition of any of claims 27-37, wherein the composition further comprises mulch.

39. The composition of any of claims 27-38, wherein the composition further comprises mulch.

40. A composition comprising a fertilizing agent and a mineral complex comprising about 40 wt.% to about 60 wt.% SiO_2, about 6 wt.% to about 16 wt.% Fe_2O_3, about 4 wt.% to about 12 wt.%. CaO, and about 2 wt.% to about 8 wt.% MgO.

41. The composition of claim 40, wherein the fertilizing agent is an inorganic fertilizing agent.

42. The composition of claim 41, wherein the inorganic fertilizing agent is selected from the group consisting of nitrogen, phosphorus, potassium, and mixtures thereof.

43. The composition of claim 40, wherein the fertilizing agent is an organic fertilizing agent.

44. The composition of claim 43, wherein the organic fertilizing agent is selected from the group consisting of manure, worm castings, compost, seaweed, humic, guano, brassin, peat moss, and mixtures thereof.

45. The composition of any of claims 40-44, wherein the mineral complex is present in the composition in an amount ranging from about 0.1 wt.% to about 99.5 wt.% of the composition.

46. The composition of claim 45, wherein the mineral complex is present in the composition in an amount ranging from about 10 wt.% to about 70 wt.% of the composition.

47. The composition of any of claims 40-46, wherein at least about 85% of the mineral complex has an average particle size of from about 10 to about 6000 mesh.

48. The composition of any of claims 40-47, wherein the composition is in the form of at least one pellet.

49. The composition of claim 48, wherein the pellet has an average diameter of from about 0.1 mm to about 10 mm.

50. The composition of any of claims 40-47, wherein the composition is in the form of a plurality of pellets.

51. The composition of claim 50, wherein each pellet has an average diameter of from about 0.1 mm to about 10 mm.

52. The composition of any of claims 40-51, wherein the composition further comprises a medium in which the fertilizing agent and the mineral complex are enclosed, wherein the medium provides for the controlled release of the fertilizing agent and the mineral complex from the medium when the medium is exposed to a water-containing environment.

53. The composition of claim 52, wherein the medium comprises a cellulosic material.

54. The composition of claim 52, wherein the medium comprises a perforated membrane.

55. A composition comprising mulch and a mineral complex comprising about 40 wt.% to about 60 wt.% SiO_2, about 6 wt.% to about 16 wt.% Fe_2O_3, about 4 wt.% to about 12 wt.% CaO, and about 2 wt.% to about 8 wt.% MgO.

56. The composition of claim 55, wherein the mulch is an inorganic mulch.

57. The composition of claim 56, wherein the inorganic mulch is selected from the group consisting of rubber, plastic, rock, gravel, and mixtures thereof.

58. The composition of claim 55, wherein the mulch is an organic mulch.

59. The composition of claim 58, wherein the organic mulch is selected from the group consisting of leaves, hay, straw, bark, sawdust, wood chips, paper, and mixtures thereof.

60. The composition of any of claims 55-59, wherein the mineral complex is present in the composition in an amount ranging from about 0.1 wt.% to about 99.5 wt.% of the composition.

61. The composition of claims 60, wherein the mineral complex is present in the composition in an amount ranging from about 10 wt.% to about 50 wt.% of the composition.

62. The composition of any of claims 55-61, wherein at least about 85% of the mineral complex has an average particle size from about 10 to about 6000 mesh.

63. The composition of any of claims 55-62, wherein the mineral complex is provided in the form of a pellet, and wherein the pellet comprises a binder and the mineral complex.

64. The composition of claim 63, wherein the pellet has an average diameter of from about 0.1 mm to about 10 mm.

65. The composition of any of claims 55-62, wherein the mineral complex is provided in the form of a plurality of pellets, and wherein each pellet comprises a binder and the mineral complex.

66. The composition of claim 65, wherein each pellet has an average diameter of from about 0.1 mm to about 10 mm.

67. The composition of any of claims 55-66, wherein the composition further comprises a medium in which the mineral complex is enclosed, wherein the medium provides for the controlled release of the mineral complex from the medium when the medium is exposed to a water-containing environment.

68. The composition of claim 67, wherein the medium comprises a cellulosic material.

69. The composition of claim 67, wherein the medium comprises a perforated membrane.

70. A composition comprising seed and a mineral complex comprising about 40 wt.% to about 60 wt.% SiO_2, about 6 wt.% to about 16 wt.% Fe_2O_3, about 4 wt.% to about 12 wt.%. CaO, and about 2 wt.% to about 8 wt.% MgO.

71. The composition of claim 70, wherein the composition further comprises a binder.

72. The composition of claim 70, wherein the composition further comprises a fertilizing agent.

73. The composition of claim 70, wherein the composition further comprises mulch.

74. The composition of claim 70, wherein the composition further comprises water.

75. The composition of claim 72, wherein the composition further comprises a binder.

76. The composition of claim 73, wherein the composition further comprises a fertilizing agent.

77. The composition of claim 70, wherein the composition further comprises a binder and water.

78. The composition of claim 70, wherein the composition further comprises a fertilizing agent and water.

79. The composition of claim 70, wherein the composition further comprises mulch and water.

80. The composition of claim 70, wherein the composition further comprises a fertilizing agent, mulch and water.

81. The composition of claim 74, wherein the composition comprises between about 25 lbs and about 500 lbs of mineral complex for every about 100 to about 500 gallons of water.

82. The composition of claim 81, wherein the composition comprises between about 50 lbs and about 300 lbs of mineral complex for every about 200 to about 300 gallons of water.

83. The composition of claim 74, wherein the composition comprises between about 10 lbs and about 100 lbs of seed per about every 100 to about 500 gallons of water.

84. The composition of claim 83, wherein the composition comprises between about 25 lbs and about 500 lbs of mineral complex for every about 200 to about 300 gallons of water.

85. The composition of any of claims 70-84, wherein at least about 85% of the mineral complex has an average particle size of about 10 to about 6000 mesh.

86. The composition of claim 85, wherein at least about 95% of the mineral complex has an average particle size of about 200 to about 6000 mesh.

87. The composition of any of claims 70-86, wherein the seed is grass seed, wild flower seed, indigenous seed or a seed which matures into a cultivatable crop.

88. The composition of claim 87, wherein the grass seed is selected from the group consisting of Poa, Lolium, Dactylis, Festuca, Deschampsia, Koeleria, Agrostis, Cynodon, Zoysia, Buchlo, Axonopus, Eremchloa, Paspalum, Stentaphrum and mixtures thereof.

89. The composition of any of claims 70-88, wherein the composition further comprises a medium in which the mineral complex is enclosed, wherein the medium provides for the controlled release of the mineral complex from the medium when the medium is exposed to a water-containing environment.

90. The composition of claim 89, wherein the medium comprises a cellulosic material.

91. The composition of claim 89, wherein the medium comprises a perforated membrane.

92. A process for augmenting soil comprising applying onto the soil the composition of claim 1, wherein the composition is applied onto the soil in an amount sufficient to provide for the application of mineral complex thereto in an amount ranging from about 200 lbs per acre to about 10,000 lbs per acre.

93. The process of claim 92, wherein the composition is applied onto the soil in an amount sufficient to provide for the application of mineral complex thereto in an amount ranging from about 200 lbs per acre to about 3,000 lbs per acre.

94. The process of claim 92 or 93, wherein the soil is sand, silt, clay, or a combination thereof.

95. The process of any of claims 92-94, wherein the composition is applied onto the soil by spraying.

96. The process of any of claims 92-94, wherein the composition further comprises water.

97. The process of claim 96, wherein the composition is applied onto the soil by spraying.

98. A process for augmenting soil comprising applying onto the soil a composition comprising a mineral complex comprising about 40 wt.% to about 60 wt.% SiO_2, about 6 wt.% to about 16 wt.% Fe_2O_3, about 4 wt.% to about 12 wt.%. CaO, and about 2 wt.% to about 8 wt.% MgO, and wherein the composition is applied onto the soil in an amount sufficient to provide for application of mineral complex thereto in an amount ranging from about 200 lbs per acre to about 10,000 lbs per acre.

99. The process of claim 98, wherein the composition is applied onto the soil in an amount sufficient to provide for application of mineral complex thereto in an amount ranging from about 200 lbs per acre to about 3,000 lbs per acre.

100. The process of claim 98 or 99, wherein the composition comprises a binder.

101. The process of any of claims 98-100, wherein the composition comprises a fertilizing agent.

102. The process of any of claims 98-101, wherein the composition comprises mulch.

103. The process of any of claims 98-102, wherein the composition comprises water.

104. The process of any of claims 98-103, wherein at least about 85% of the mineral complex has an average particle size from about 10 to about 6000 mesh.

105. A process for enhancing moisture retention in soil comprising introducing into the soil a mineral complex comprising about 40 wt.% to about 60 wt.% SiO_2, about 6 wt.% to about 16 wt.% Fe_2O_3, about 4 wt.% to about 12 wt.%. CaO, and about 2 wt.% to about 8 wt.% MgO, wherein the mineral complex is introduced into the soil in an amount sufficient to provide for the application of mineral complex thereto in an amount ranging from about 200 lbs per acre and about 10,000 lbs per acre, and wherein the soil into which the mineral complex has been introduced exhibits enhanced moisture retention relative to untreated soil.

106. The process of claim 105, wherein the composition is introduced in to the soil in an amount sufficient to provide for the application of mineral complex thereto in an amount ranging between about 200 lbs per acre to about 3,000 lbs per acre .

107. The process of claim 105 or 106, wherein the soil is sand, silt, clay, or any combination thereof.

108. The process of claim 107, wherein the soil is sand.

109. The process of any of claims 105-108, wherein the moisture content of the soil into which the mineral complex has been introduced is increased at least about 5% relative to untreated soil.

110. The process of any of claims 105-109, wherein the process further provides to an increase in bacterial growth within the soil that is beneficial to plant growth.

111. The process of any of claims 105-110, wherein at least about 85% of the mineral complex has an average particle size of about 10 to about 6000 mesh.

112. A process for enhancing the germination rate of a seed in a growth medium comprising implanting the seed in the growth medium and introducing into the growth medium a mineral complex comprising about 40 wt.% to about 60 wt.% SiO_2, about 6 wt.% to about 16 wt.% Fe_2O_3, about 4 wt.% to about 12 wt.%. CaO, and about 2 wt.% to about 8 wt.% MgO.

113. The process of claim 112, wherein the mineral complex is introduced into the growth medium in an amount ranging from about 200 lbs per acre to about 10,000 lbs per acre.

114. The process of claim 113, wherein the mineral complex is introduced into the growth medium in an amount ranging from about 200 lbs per acre to about 3,000 lbs per acre.

115. The process of any of claims 112-114, wherein the mineral complex is introduced into the growth medium prior to implantation of the seed.

116. The process of any of claims 112-114, wherein the mineral complex is introduced into the growth medium at the time the seed is implanted.

117. The process of any of claims 112-114, wherein the mineral complex is introduced into the growth medium after implantation of the seed.

118. The process of any of claims 112-117, wherein the germination rate of the seed is increased by at least about 1 day as compared to the germination rate of the seed in the absence of the mineral complex.

119. The process of any of claims 112-118, wherein at least about 85% of the mineral complex has an average particle size from about 10 to about 6000 mesh.

120. A process for mitigating erosion in soil comprising introducing into the soil a mineral complex comprising about 40 wt.% to about 60 wt.% SiO_2, about 6 wt.% to about 16 wt.% Fe_2O_3, about 4 wt.% to about 12 wt.%. CaO, and about 2 wt.% to about 8 wt.% MgO, wherein the mineral complex has an average particle size from about 200 to about 6000 mesh, and wherein the mineral complex is introduced into the soil in an amount ranging from about 200 lbs per acre to about 10,000 lbs per acre.

121. The process of claim 120, wherein the mineral complex is introduced into the sand in an amount ranging from about 200 lbs per acre to about 3,000 lbs per acre.

122. A process for enhancing growth in plants in a hydroponic growth medium comprising applying onto the hydroponic growth medium a mineral complex comprising about 40 wt.% to about 60 wt.% SiO_2, about 6 wt.% to about 16 wt.% Fe_2O_3, about 4 wt.% to about 12 wt.%. CaO, and about 2 wt.% to about 8 wt.% MgO.

123. The process of claim 122, wherein the mineral complex is introduced into the medium in an amount ranging from about 50 lbs to about 5,000 lbs per 5,000 square feet of surface area of the medium.

124. The process of claim 123, wherein the mineral complex is introduced into the medium in an amount ranging from about 50 lbs to about 500 lbs per 5,000 square feet of surface area of the medium.

125. The process of any of claims 122-124, wherein the mineral complex is introduced into the medium prior to implantation of any plant.

126. The process of any of claims 122-124, wherein the mineral complex is introduced into the medium at the time a plant is introduced into the medium.

127. The process of any of claims 122-124, wherein the mineral complex is introduced into the growth medium after a plant is introduced into the medium.

128. The process of any of claims 122-127, wherein at least about 85% of the mineral complex has an average particle size from about 10 to about 6000 mesh.

129. A process for remediating soil having an elevated level of sodium (Na) relative to normal soil comprising applying onto the soil having an elevated level of sodium relative to normal soil a composition comprising a mineral complex comprising about 40 wt.% to about 60 wt.% SiO_2, about 6 wt.% to about 16 wt.% Fe_2O_3, about 4 wt.% to about 12 wt.%. CaO, and about 2 wt.% to about 8 wt.% MgO, wherein the composition is applied onto the soil in an amount sufficient to provide thereon mineral complex in an amount ranging from about 200 lbs per acre to about 10,000 lbs per acre.

130. The process of claim 129, wherein the soil has an elevated level of NaCl relative to normal soil.

131. The process of claim 130, wherein the elevated NaCl level in the soil is from about 25 ppm and about 500,000 ppm.

132. The process of claim 131, wherein the elevated NaCl level in the soil is from about 50 ppm and about 250,000 ppm.

133. The process of claim 129, wherein the soil has an elevated level of Na_2CO_3 relative to normal soil.

134. The process of any of claims 129-133, wherein the soil has a pH greater than 8.5.

135. The process of any of claims 129-134, wherein the soil further comprises an elevated level of at least one of sulfur, calcium, or magnesium relative to normal soil.

136. The process of any of claims 129-135, wherein the soil is sand, silt, clay, or any combination thereof.

137. The process of claim 136, wherein the soil is clay.

138. The process of claim 137, wherein the soil is classified as clay in accordance with ASTM D2487.

139. The process of claim 137, wherein the soil is classified as CH, OH, or CL in accordance with the Unified Soil Classification System.

140. The process of any of claims 129-139, wherein the soil is covered with vegetation.

141. The process of any of claims 129-140, wherein the composition is applied onto the soil to provide thereon mineral complex in an amount ranging between about 200 lbs per acre and about 3,000 lbs per acre.

142. The process of any of claims 129-141, wherein the composition further comprises a binder.

143. The process of any of claims 129-142, wherein the composition further comprises mulch.

144. The process of any of claims 129-143, wherein the composition further comprises a fertilizing agent.

145. The process of any of claims 129-144, wherein the composition further comprises seed.

146. The process of any of claims 129-145, wherein the composition is applied onto the soil by spraying.

147. The process of any of claims 129-145, wherein the composition further comprises water.

148. The process of claim 147, wherein the composition is applied onto the soil by spraying.

149. The process of any of claims 129-148, wherein at least about 85% of the mineral complex has an average particle size from about 10 to about 6000 mesh.

150. The process of claim 149, wherein at least about 85% of the mineral complex has an average particle size from about 200 to about 6000 mesh.

151. The process of any of claims 129-150, wherein the composition is enclosed within a medium, and wherein the medium provides for the controlled release of the mineral complex from the medium when the medium is exposed to a water-containing environment.

152. The process of claim 151, wherein the medium comprises a cellulosic material.

153. The process of claim 151, wherein the medium comprises a perforated membrane.

154. A process for enhancing the ability of sodium-enriched soil to support vegetation comprising introducing into the soil a composition comprising a mineral complex comprising about 40 wt.% to about 60 wt.% SiO_2, about 6 wt.% to about 16 wt.% Fe_2O_3, about 4 wt.% to about 12 wt.%. CaO, and about 2 wt.% to about 8 wt.% MgO, wherein the composition is introduced into the soil in an amount sufficient to provide therein mineral complex in an amount ranging from about 200 lbs per acre to about 10,000 lbs per acre, and wherein the soil into which the mineral complex has been introduced exhibits enhanced vegetation relative to untreated soil.

155. The process of claim 154, further comprising introducing seed into the soil into which the mineral complex has been introduced.

156. The process of claim 155, wherein the seed is introduced into the soil prior to the introduction of the mineral complex.

157. The process of claim 156, wherein the seed is introduced into the soil at least 1 day prior to the introduction of the mineral complex.

158. The process of claim 155, wherein the seed is introduced into the soil after the introduction of the mineral complex.

159. The process of claim 158, wherein the seed is introduced into the soil at least 1 day after the introduction of the mineral complex.

160. The process of any of claims 155-159, wherein the seed is grass seed, wild flower seed, indigenous seed or a seed which matures into a cultivatable crop.

161. The process of claim 160, wherein the grass seed is selected from the group consisting of Poa, Lolium, Dactylis, Festuca, Deschampsia, Koeleria, Agrostis, Cynodon, Zoysia, Buchlo, Axonopus, Eremchloa, Paspalum, Stentaphrum and mixtures thereof.

162. The process of claim 154, further comprising introducing vegetation into the soil into which the mineral complex has been introduced.

163. The process of any of claims 154-162, wherein the soil has an elevated level of NaCl relative to normal soil.

164. The process of any of claims 154-162, wherein the soil has an elevated level of Na_2CO_3 relative to normal soil.

165. The process of any of claims 154-164, wherein the soil has a pH greater than 8.5.

166. The process of any of claims 154-165, wherein the soil further comprises an elevated level of at least one of sulfur, calcium, or magnesium.

167. The process of any of claims 154-166, wherein the soil is sand, silt, clay, or any combination thereof.

168. The process of any of claims 154-167, wherein the soil is covered with vegetation.

169. The process of any of claims 154-168, wherein the composition is introduced into the soil in an amount which provides mineral complex therein in an amount ranging between about 200 lbs per acre and about 3,000 lbs per acre.

170. The process of any of claims 154-169, wherein the composition further comprises a binder.

171. The process of any of claims 154-170, wherein the composition further comprises mulch.

172. The process of any of claims 154-171, wherein the composition further comprises a fertilizing agent.

173. The process of any of claims 154-172, wherein the composition further comprises seed.

174. The process of any of claims 154-173, wherein the composition is introduced into the soil by spraying.

175. The process of any of claims 154-173, wherein the composition further comprises water.

176. The process of claim 175, wherein the composition is introduced into the soil by spraying.

177. The process of any of claims 154-176, wherein at least about 85% of the mineral complex has an average particle size from about 10 to about 6000 mesh.

178. The process of claim 177, wherein at least about 85% of the mineral complex has an average particle size form about 200 to about 6000 mesh.

179. The process of any of claims 154-178, wherein the composition is enclosed within a medium, and wherein the medium provides for the controlled release of the mineral complex from the medium when the medium is exposed to a water-containing environment.

180. The process of claim 179, wherein the medium comprises a cellulosic material.

181. The process of claim 179, wherein the medium comprises a perforated membrane.

182. A process for remediating soil having an elevated level of hydrocarbons relative to normal soil comprising applying onto the soil having an elevated level of hydrocarbons relative to normal soil a composition comprising a mineral complex comprising about 40 wt.% to about 60 wt.% SiO_2, about 6 wt.% to about 16 wt.% Fe_2O_3, about 4 wt.% to about 12 wt.%. CaO, and about 2 wt.% to about 8 wt.% MgO, wherein the composition is

applied onto the soil in an amount sufficient to provide thereon mineral complex in an amount ranging from about 200 lbs per acre to about 10,000 lbs per acre.

183. The process of claim 181, wherein the hydrocarbon is oil.

184. The process of claim 181 or 182, wherein the composition is applied onto the soil in an amount sufficient to provide thereon mineral complex in an amount ranging from about 200 lbs per acre to about 3,000 lbs per acre.

185. The process of any of claims 181-184, wherein the composition further comprises a binder.

186. The process of any of claims 181-185, wherein the composition further comprises mulch.

187. The process of any of claims 181-186, wherein the composition further comprises a fertilizing agent.

188. The process of any of claims 181-187, wherein the composition further comprises seed.

189. The process of any of claims 181-188, wherein the composition is applied onto the soil by spraying.

190. The process of any of claims 181-188, wherein the composition further comprises water.

191. The process of claim 190, wherein the composition is applied on to the soil by spraying.

192. The process of any of claims 181-191, wherein at least about 85% of the mineral complex has an average particle size from about 10 to about 6000 mesh.

193. The process of claim 192, wherein at least about 85% of the mineral complex has an average particle size form about 200 to about 6000 mesh.

194. The process of any of claims 181-193, wherein the soil is sand, silt, clay, or any combination thereof.

195. The process of any of claims 181-194, further comprising introducing vegetation into the soil into which the mineral complex has been applied.

196. The process of any of claims 181-195, wherein the composition is enclosed in a medium, and wherein the medium provides for the controlled release of the mineral complex from the medium when the medium is exposed to a water-containing environment.

197. The process of claim 196, wherein the medium comprises a cellulosic material.

198. The process of claim 196, wherein the medium comprises a perforated membrane.

199. A process for remediating contaminated soil comprising introducing into the soil a composition comprising a mineral complex comprising about 40 wt.% to about 60 wt.% SiO_2, about 6 wt.% to about 16 wt.% Fe_2O_3, about 4 wt.% to about 12 wt.%. CaO, and about 2 wt.% to about 8 wt.% MgO, wherein the contaminated soil includes one or more of the following contaminants: asbestos, radioactive substances, sewage, oil, fuel, pesticides, solvents, landfill waste, chemicals, or heavy metals.

200. The process of claim 199, wherein the soil is contaminated with at least one heavy metal selected from the group consisting of lead, mercury, zinc, cadmium and chromium.

201. The process of claim 199 or 200, wherein the composition is introduced into the soil in an amount sufficient to provide therein mineral complex in an amount ranging from about 200 lbs per acre to about 3,000 lbs per acre.

202. The process of any of claims 199-201, wherein the composition further comprises a binder.

203. The process of any of claims 199-202, wherein the composition further comprises mulch.

204. The process of any of claims 199-203, wherein the composition further comprises a fertilizing agent.

205. The process of any of claims 199-204, wherein the composition further comprises seed.

206. The process of any of claims 199-205, wherein the composition is applied onto the soil by spraying.

207. The process of any of claims 199-205, wherein the composition further comprises water.

208. The process of claim 207, wherein the composition is applied onto the soil by spraying.

209. The process of any of claims 199-208, wherein at least about 85% of the mineral complex has an average particle size from about 10 to about 6000 mesh.

210. The process of claim 209, wherein at least about 85% of the mineral complex has an average particle size form about 200 to about 6000 mesh.

211. The process of any of claims 199-210, wherein the soil is sand, silt, clay, or any combination thereof.

212. The process of any of claims 199-211, further comprising introducing vegetation into the soil into which the mineral complex has been introduced.

213. The process of any of claims 199-212, wherein the composition is enclosed within a medium, wherein the medium provides for the controlled release of the mineral complex from the medium when the medium is exposed to a water-containing environment.

214. The process of claim 213, wherein the medium comprises a cellulosic material.

215. The process of claim 213, wherein the medium comprises a perforated membrane.

216. A method for remediating water contaminated by oil or oil-based materials comprising applying onto the contaminated water a composition comprising a mineral

complex comprising about 40 wt.% to about 60 wt.% SiO_2, about 6 wt.% to about 16 wt.% Fe_2O_3, about 4 wt.% to about 12 wt.%. CaO, and about 2 wt.% to about 8 wt.% MgO.

217. The method of claim 216, where in the method further comprises removing the oil and/or oil-based materials from the water after application of the composition.

218. The method of claim 216 or 217, wherein the composition is applied onto the water in an amount sufficient to provide therein mineral complex in an amount ranging from about 50 lbs to about 500 lbs per 5,000 square feet of surface area of water.

219. The method of any of claims 216-218, wherein the water is fresh water.

220. The method of any of claims 216-218, wherein the water is salt water.

221. The method of any of claims 216-220, wherein at least 85% of the mineral complex has an average particle size of about 10 to about 6000 mesh.

222. The method of claim 221, wherein at least 85% of the mineral complex has an average particle size of about 200 to about 6000 mesh.

223. The method of any of claims 216-222, wherein the composition is applied onto the water by spraying.

224. The method of any of claims 216-220, wherein the composition is enclosed in a medium, and wherein the medium provides for the controlled release of the mineral complex from the medium when the medium is exposed to a water-containing environment.

225. The method of claim 224, wherein the medium comprises a cellulosic material.

226. The method of claim 224, wherein the medium comprises a perforated membrane.

227. The method of any of claims 216-226, further comprising repeating the application of the composition onto the contaminated water at least once after the initial application thereof.

The invention claimed is:

1. A composition comprising a binder and a mineral complex, wherein the mineral complex consists essentially of a natural volcanic mineral deposit comprising 47 wt. % to about 54 wt. % SiO_2, about 9 wt. % to about 15 wt. % Fe_2O_3, about 6 wt. % to about 10 wt. % CaO, about 4 wt. % to about 7 wt. % MgO, about 12 wt. % to about 15 wt. % Al_2O_3, about 1 wt. % to about 4 wt. % Na_2O, about 0.01 wt. % to about 3 wt. % K_2O, about 0.01 wt. % to about 0.03 wt. % Cr_2O_3, about 1.0 wt. % to about 2.0 wt. % TiO_2, about 0.1 wt. % to about 0.3 wt. % MnO, about 0.1 wt. % to about 0.3 wt. % P_2O_5, about 0.01 wt. % to about 0.05 wt. % SrO, and about 0.01 wt. % to about 2 wt. % BaO, and wherein the mineral complex further comprises one or more of Ag, Ba, Co, Cr, Cs, Cu, Ga, Hf, Mo, Nb, Ni, Rb, Sn, Sr, Ta, Th, Tl, V, W, Zn, and Zr in the ranges set forth in Table 1

TABLE 1

Element	Range (ppm based on total weight of mineral complex)
Ag	about 0.0001 ppm to about 10 ppm
Ba	about 1 ppm to about 500 ppm
Co	about 0.01 ppm to about 200 ppm
Cr	about 1 ppm to about 400 ppm
Cs	about 0.0001 ppm to about 50 ppm
Cu	about 1 ppm to about 400 ppm
Ga	about 0.001 ppm to about 200 ppm
Hf	about 0.001 ppm to about 50 ppm
Mo	about 0.001 ppm to about 25 ppm
Nb	about 0.001 ppm to about 100 ppm
Ni	about 1 ppm to about 400 ppm
Rb	about 1 ppm to about 400 ppm
Sn	about 0.0001 ppm to about 15 ppm
Sr	about 1 ppm to about 600 ppm
Ta	about 0.0001 ppm to about 10 ppm
Th	about 0.001 ppm to about 200 ppm
Tl	about 0.0001 ppm to about 25 ppm
V	about 1 ppm to about 600 ppm
W	about 0.0001 ppm to about 25 ppm
Zn	about 1 ppm to about 400 ppm
Zr	about 1 ppm to about 400 ppm

and one or more of Bi, Hg, Se, and Te in the ranges set forth in Table 2

TABLE 2

Element	Range (ppm based on total weight of mineral complex)
Bi	about 0.0001 ppm to about 4 ppm
Hg	about 0.00001 ppm to about 0.5 ppm
Se	about 0.0001 ppm to about 4 ppm
Te	about 0.0001 ppm to about 2 ppm

wherein, in the mineral complex, As is present in an amount less than 5 ppm, Sb is present in an amount less than 2 ppm, Pb is present in an amount of 5.15 ppm or less, and U is present in an amount of 1.31 ppm or less.

2. The composition of claim 1, wherein the binder is an organic material.

3. The composition of claim 1, wherein at least about 85% of the mineral complex has an average particle size from about 10 to about 6-000 mesh.

4. The composition of claim 1, wherein the composition is in the form of at least one pellet.

5. The composition of claim 4, wherein the pellet has an average diameter of from about 0.1 mm to about 10 mm.

6. The composition of claim 1, wherein the composition is in the form of a plurality of pellets.

7. The composition of claim 6, wherein each pellet has an average diameter of from about 0.1 mm to about 10 mm.

8. The composition of claim 1, wherein the binder provides for the extended release of mineral complex from the composition when the composition is exposed to a water-containing environment.

9. The composition of claim 1, wherein the binder is selected from at least one of the group consisting of sulfur, wax, polymer, oil, urea-formaldehyde, plant starches, protein gels, glues, gumming compositions, humic, crystallizing compounds, gelling clays, synthetic gel-forming compounds, and mixtures thereof.

10. The composition of claim 1, wherein the mineral complex is present in the composition in an amount ranging from about 50 wt. % to about 99.5 wt. % of the composition.

11. The composition of claim 1, wherein the composition further comprises a fertilizing agent.

12. The composition of claim 11, wherein the composition further comprises mulch.

13. The composition of claim 1, wherein the composition further comprises mulch.

14. The composition of claim 1, wherein the composition is in the form of a plurality of pellets, wherein each pellet has an average diameter of from about 0.1 mm to about 10 mm.

15. The composition of claim 14, wherein the binder provides for the extended release of mineral complex from the composition when the composition is exposed to a water-containing environment.

16. A composition comprising a fertilizing agent and a mineral complex, wherein the mineral complex consists essentially of a natural volcanic mineral deposit comprising 47 wt. % to about 54 wt. % SiO_2, about 9 wt. % to about 15 wt. % Fe_2O_3, about 6 wt. % to about 10 wt. % CaO, about 4 wt. % to about 7 wt. % MgO, about 12 wt. % to about 15 wt. % Al_2O_3, about 1 wt. % to about 4 wt. % Na_2O, about 0.01 wt. % to about 3 wt. % K_2O, about 0.01 wt. % to about 0.03 wt. % Cr_2O_3, about 1.0 wt. % to about 2.0 wt. % TiO_2, about 0.1 wt. % to about 0.3 wt. % MnO, about 0.1 wt. % to about 0.3 wt. % P_2O_5, about 0.01 wt. % to about 0.05 wt. % SrO, and about 0.01 wt. % to about 2 wt. % BaO, wherein the mineral complex further comprises one or more of Ag, Ba, Co, Cr, Cs, Cu, Ga, Hf, Mo, Nb, Ni, Rb, Sn, Sr, Ta, Th, Tl, V, W, Zn, and Zr in the ranges set forth in Table 1

TABLE 1

Element	Range (ppm based on total weight of mineral complex)
Ag	about 0.0001 ppm to about 10 ppm
Ba	about 1 ppm to about 500 ppm
Co	about 0.01 ppm to about 200 ppm
Cr	about 1 ppm to about 400 ppm
Cs	about 0.0001 ppm to about 50 ppm
Cu	about 1 ppm to about 400 ppm
Ga	about 0.001 ppm to about 200 ppm
Hf	about 0.001 ppm to about 50 ppm
Mo	about 0.001 ppm to about 25 ppm
Nb	about 0.001 ppm to about 100 ppm
Ni	about 1 ppm to about 400 ppm
Rb	about 1 ppm to about 400 ppm
Sn	about 0.0001 ppm to about 15 ppm
Sr	about 1 ppm to about 600 ppm
Ta	about 0.0001 ppm to about 10 ppm
Th	about 0.001 ppm to about 200 ppm
Tl	about 0.0001 ppm to about 25 ppm
V	about 1 ppm to about 600 ppm
W	about 0.0001 ppm to about 25 ppm
Zn	about 1 ppm to about 400 ppm
Zr	about 1 ppm to about 400 ppm

and one or more of Bi, Hg, Se, and Te in the ranges set forth in Table 2

TABLE 2

Element	Range (ppm based on total weight of mineral complex)
Bi	about 0.0001 ppm to about 4 ppm
Hg	about 0.00001 ppm to about 0.5 ppm
Se	about 0.0001 ppm to about 4 ppm
Te	about 0.0001 ppm to about 2 ppm

wherein, in the mineral complex, As is present in an amount less than 5 ppm, Sb is present in an amount less than 2 ppm, Pb is present in an amount of 5.15 ppm or less, and U is present in an amount of 1.31 ppm or less.

17. The composition of claim 16, wherein the fertilizing agent is an inorganic fertilizing agent.

18. The composition of claim 17, wherein the inorganic fertilizing agent is selected from the group consisting of nitrogen, phosphorus, potassium, and mixtures thereof.

19. The composition of claim 16, wherein the fertilizing agent is an organic fertilizing agent.

20. The composition of claim 19, wherein the organic fertilizing agent is selected from the group consisting of manure, worm castings, compost, seaweed, humic, guano, brassin, peat moss, and mixtures thereof.

21. The composition of claim 16, wherein the mineral complex is present in the composition in an amount ranging from about 0.1 wt. % to about 99.5 wt. % of the composition.

22. The composition of claim 21, wherein the mineral complex is present in the composition in an amount ranging from about 10 wt. % to about 70 wt. % of the composition.

23. The composition of claim 16, wherein at least about 85% of the mineral complex has an average particle size of from about 10 to about 6000 mesh.

24. The composition of claim 16, wherein the composition is in the form of at least one pellet.

25. The composition of claim 24, wherein the pellet has an average diameter of from about 0.1 mm to about 10 mm.

26. The composition of claim 16, wherein the composition is in the form of a plurality of pellets.

27. The composition of claim 26, wherein each pellet has an average diameter of from about 0.1 mm to about 10 mm.

28. The composition of claim 16, wherein the composition further comprises a medium in which the fertilizing agent and the mineral complex are enclosed, wherein the medium provides for the controlled release of the fertilizing agent and the mineral complex from the medium when the medium is exposed to a water-containing environment.

29. The composition of claim 28, wherein the medium comprises a cellulosic material.

30. The composition of claim 28, wherein the medium comprises a perforated membrane.

31. The composition of claim 16, wherein the composition is in the form of a plurality of pellets, wherein each pellet has an average diameter of from about 0.1 mm to about 10 mm.

32. A composition comprising mulch and a mineral complex, wherein the mineral complex consists essentially of a natural volcanic mineral deposit comprising 47 wt. % to about 54 wt. % SiO_2, about 9 wt. % to about 15 wt. % Fe_2O_3, about 6 wt. % to about 10 wt. % CaO, about 4 wt. % to about 7 wt. % MgO, 12 wt. % to about 15 wt. % Al_2O_3, about 1 wt. % to about 4 wt. % Na_2O, about 0.01 wt. % to about 3 wt. % K_2O, about 0.01 wt. % to about 0.03 wt. % Cr_2O_3, about 1.0 wt. % to about 2.0 wt. % TiO_2, about 0.1 wt. % to about 0.3 wt. % MnO, about 0.1 wt. % to about 0.3 wt. % P_2O_5, about 0.01 wt. % to about 0.05 wt. % SrO, and about 0.01 wt. % to about 2 wt. % BaO, and wherein the mineral complex further comprises one or more of Ag, Ba, Co, Cr, Cs, Cu, Ga, Hf, Mo, Nb, Ni, Rb, Sn, Sr, Ta, Th, Tl, V, W, Zn, and Zr in the ranges set forth in Table 1

TABLE 1

Element	Range (ppm based on total weight of mineral complex)
Ag	about 0.0001 ppm to about 10 ppm
Ba	about 1 ppm to about 500 ppm
Co	about 0.01 ppm to about 200 ppm
Cr	about 1 ppm to about 400 ppm
Cs	about 0.0001 ppm to about 50 ppm
Cu	about 1 ppm to about 400 ppm
Ga	about 0.001 ppm to about 200 ppm
Hf	about 0.001 ppm to about 50 ppm
Mo	about 0.001 ppm to about 25 ppm
Nb	about 0.001 ppm to about 100 ppm
Ni	about 1 ppm to about 400 ppm
Rb	about 1 ppm to about 400 ppm
Sn	about 0.0001 ppm to about 15 ppm
Sr	about 1 ppm to about 600 ppm
Ta	about 0.0001 ppm to about 10 ppm
Th	about 0.001 ppm to about 200 ppm
Tl	about 0.0001 ppm to about 25 ppm
V	about 1 ppm to about 600 ppm
W	about 0.0001 ppm to about 25 ppm
Zn	about 1 ppm to about 400 ppm
Zr	about 1 ppm to about 400 ppm

and one or more of Bi, Hg, Se, and Te in the ranges set forth in Table 2

TABLE 2

Element	Range (ppm based on total weight of mineral complex)
Bi	about 0.0001 ppm to about 4 ppm
Hg	about 0.00001 ppm to about 0.5 ppm
Se	about 0.0001 ppm to about 4 ppm
Te	about 0.0001 ppm to about 2 ppm

wherein, in the mineral complex, As is present in an amount less than 5 ppm, Sb is present in an amount less than 2 ppm, Pb is present in an amount of 5.15 ppm or less, and U is present in an amount of 1.31 ppm or less.

33. The composition of claim 32, wherein the mulch is an inorganic mulch.

34. The composition of claim 33, wherein the inorganic mulch is selected from the group consisting of rubber, plastic, rock, gravel, and mixtures thereof.

35. The composition of claim 32, wherein the mulch is an organic mulch.

36. The composition of claim 35, wherein the organic mulch is selected from the group consisting of leaves, hay, straw, bark, sawdust, wood chips, paper, and mixtures thereof.

37. The composition of claim 32, wherein the mineral complex is present in the composition in an amount ranging from about 0.1 wt. % to about 99.5 wt. % of the composition.

38. The composition of claim 37, wherein the mineral complex is present in the composition in an amount ranging from about 10 wt. % to about 50 wt. % of the composition.

39. The composition of claim 32, wherein at least about 85% of the mineral complex has an average particle size from about 10 to about 6-000 mesh.

40. The composition of claim 32, wherein the composition is provided in the form of a pellet, and wherein the pellet comprises a binder and the mineral complex.

41. The composition of claim 40, wherein the pellet has an average diameter of from about 0.1 mm to about 10 mm.

42. The composition of claim 32, wherein the composition is provided in the form of a plurality of pellets, and wherein each pellet comprises a binder and the mineral complex.

43. The composition of claim 42, wherein each pellet has an average diameter of from about 0.1 mm to about 10 mm.

44. The composition of claim 32, wherein the composition further comprises a medium in which the mineral complex is enclosed, wherein the medium provides for the controlled release of the mineral complex from the medium when the medium is exposed to a water-containing environment.

45. The composition of claim 44, wherein the medium comprises a cellulosic material.

46. The composition of claim 44, wherein the medium comprises a perforated membrane.

47. The composition of claim 32, wherein the composition further comprises a binder, the composition is provided in the form of a plurality of pellets.

48. The composition of claim 47, wherein each pellet has an average diameter of from about 0.1 mm to about 10 mm.