Table S1. Result of the 1st stage for spring N1.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Categories | Parameters | Weight (p) | Grade (n) | (P\*n) | Category weight (pc) | S1\*pc |
| Interferences at the spring | Eutrophication | 0.04 | 5 | 0.2 |  |  |
| Interferences in the water flow | 0.1 | 2 | 0.2 |
| Displacement of the water outcrop | 0.19 | 3 | 0.57 |
| Access of farm animals to the spring area | 0.12 | 3 | 0.36 |
| Release or presence of sewage and/or contaminated effluents at the spring | 0.3 | 1 | 0.3 |
| Release and/or runoff of rainwater at the spring | 0.25 | 1 | 0.25 |
|  |  | Sum (S1) | 1.88 | 0.27 | 0.507 |
| Physical soil integrity | Soil silting | 0.26 | 1 | 0.26 |  |  |
| Earthworks with tools and machinery | 0.1 | 1 | 0.1 |
| Occurrence of erosion | 0.46 | 1 | 0.46 |
| Soil compaction | 0.18 | 1 | 0.18 |
|  |  | Sum (S1) | 1 | 0.27 | 0.27 |
| Characteristics of land use and occupation around the spring | Density of the natural vegetation cover in the APP | 0.3 | 3 | 0.9 |  |  |
| Density of the natural vegetation cover in the interface area | 0.14 | 1 | 0.14 |  |  |
| Presence of invasive alien species in the APP and interface area | 0.08 | 3 | 0.24 |  |  |
| APP isolation and protection | 0.1 | 1 | 0.1 |  |  |
| Classes of land use and occupation present in the vicinity of the spring | 0.38 | 1 | 0.38 |  |  |
| Presence of buildings |  | 1 |  |  |  |
| Presence of industries |  | NA |  |  |  |
| Presence of agricultural crops |  | NA |  |  |  |
| Presence of livestock activity |  | NA |  |  |  |
| Presence of forestry |  | NA |  |  |  |
| Fire practices in the area around the spring |  | 3 |  |  |  |
| Presence of highways. roads or streets |  | 1 |  |  |  |
| Presence of sources generating solid particles |  | 1 |  |  |  |
| Disposal of common. hazardous and/or urban waste |  | 1 |  |  |  |
|  |  | Sum (S1) | 1.76 | 0.46 | 0.809 |
|  |  | SUM (S2) | 1.586 |

Table S2. Result of the 3rd stage for spring N1.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Categories | Parameters | Weight (p) | Grade (n) | (P\*n) | Category weight (pc) | S1\*pc |
| Existence of natural vegetation around the spring | Respect for the APP radius established in Law 12.727 of 2012 (Brazilian Forest Code) | 0.6 | 2 | 1.2 |  |  |
| Vegetation Fragment Quantity Index (IQF)(Area of Fragments within the buffer/Area formed by the 1 kilometer buffer) | 0.4 | 1 | 0.4 |
|  |  | Sum (S1) | 1.6 | 0.6 | 0.96 |
| Characteristics of land use and occupation around the spring | Degree of anthropization of land use and occupation around the spring (Degree of hemerobia) | 1 | 1 | 1 |  |  |
|  |  | Sum (S1) | 1 | 0.4 | 0.4 |
|  |  | SUM (S2) | 1.36 |

Table S3. Final Result for spring N1.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Stage | Categories | S2 | Category weight (pe) | S2\*pe |
| Assessment of environmental conditions in the field | Qualitative monitoring of spring water | 1.586 | 0.65 | 1.03 |
| Interferences at the spring |
| Physical soil integrity |
| Features of use and land occupation around the spring |
| Research on conservation and recovery actions developed | Conservation and recovery actions adopted and developed | 2.14 | 0.1 | 0.214 |
| Assessment of environmental conditions using Geographic Information Systems (GIS) | Existence of natural vegetation around the spring | 1.36 | 0.25 | 0.34 |
| Characteristics of land use and occupation around the spring (Buffer of 1 km) |
|  |  | SUM (S3) | 1.584 |

Table S4. Result of the 1st stage for spring N2.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Categories | Parameters | Weight (p) | Grade (n) | (P\*n) | Category weight (pc) | S1\*pc |
| Interferences at the spring | Eutrophication | 0.04 | 5 | 0.2 |  |  |
| Interferences in the water flow | 0.1 | 2 | 0.2 |
| Displacement of the water outcrop | 0.19 | 3 | 0.57 |
| Access of farm animals to the spring area | 0.12 | 3 | 0.36 |
| Release or presence of sewage and/or contaminated effluents at the spring | 0.3 | 3 | 0.9 |
| Release and/or runoff of rainwater at the spring | 0.25 | 1 | 0.25 |
|  |  | Sum (S1) | 2.48 | 0.27 | 0.669 |
| Physical soil integrity | Soil silting | 0.26 | 1 | 0.26 |  |  |
| Earthworks with tools and machinery | 0.1 | 1 | 0.1 |
| Occurrence of erosion | 0.46 | 1 | 0.46 |
| Soil compaction | 0.18 | 1 | 0.18 |
|  |  | Sum (S1) | 1 | 0.27 | 0.27 |
| Characteristics of land use and occupation around the spring | Density of the natural vegetation cover in the APP | 0.3 | 1 | 0.3 |  |  |
| Density of the natural vegetation cover in the interface area | 0.14 | 1 | 0.14 |
| Presence of invasive alien species in the APP and interface area | 0.08 | 1 | 0.08 |
| APP isolation and protection | 0.1 | 1 | 0.1 |
| Classes of land use and occupation present in the vicinity of the spring | 0.38 | 1.33 | 0.506 |
| Presence of buildings |  | 1 |  |
| Presence of industries |  | NA |  |
| Presence of agricultural crops |  | NA |  |
| Presence of livestock activity |  | 1 |  |
| Presence of forestry |  | NA |  |
| Fire practices in the area around the spring |  | 3 |  |
| Presence of highways. roads or streets |  | 1 |  |
| Presence of sources generating solid particles |  | 1 |  |
| Disposal of common. hazardous and/or urban waste |  | 1 |  |
|  |  | Sum (S1) | 1.126 | 0.46 | 0.517 |
|  |  | SUM (S2) | 1.456 |

Table S5. Result of the 3rd stage for spring N2.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Categories | Parameters | Weight (p) | Grade (n) | (P\*n) | Category weight (pc) | S1\*pc |
| Existence of natural vegetation around the spring | Respect for the APP radius established in Law 12.727 of 2012 (Brazilian Forest Code) | 0.6 | 4 | 2.4 |  |  |
| Vegetation Fragment Quantity Index (IQF)(Area of Fragments within the buffer/Area formed by the 1 kilometer buffer) | 0.4 | 1 | 0.4 |
|  |  | Sum (S1) | 2.8 | 0.6 | 1.68 |
| Characteristics of land use and occupation around the spring | Degree of anthropization of land use and occupation around the spring (Degree of hemerobia) | 1 | 1 | 1 |  |  |
|  |  | Sum (S1) | 1 | 0.4 | 0.4 |
|  |  | SUM (S2) | 2.08 |

Table S6. Final Result for spring N2.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Stage | Categories | S2 | Category weight (pe) | S2\*pe |
| Assessment of environmental conditions in the field | Qualitative monitoring of spring water | 1.456 | 0.65 | 0.946 |
| Interferences at the spring |
| Physical soil integrity |
| Features of use and land occupation around the spring |
| Research on conservation and recovery actions developed | Conservation and recovery actions adopted and developed | 2.14 | 0.1 | 0.214 |
| Assessment of environmental conditions using Geographic Information Systems (GIS) | Existence of natural vegetation around the spring | 2.08 | 0.25 | 0.52 |
| Characteristics of land use and occupation around the spring (Buffer of 1 km) |
|  |  | SUM (S3) | 1.68 |

Table S7. Result of the 1st stage for spring N3.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Categories | Parameters | Weight (p) | Grade (n) | (P\*n) | Category weight (pc) | S1\*pc |
| Interferences at the spring | Eutrophication | 0.4 | 3 | 1.2 |  |  |
| Interferences in the water flow | 0.1 | 2 | 0.2 |
| Displacement of the water outcrop | 0.19 | 3 | 0.57 |
| Access of farm animals to the spring area | 0.12 | 1 | 0.12 |
| Release or presence of sewage and/or contaminated effluents at the spring | 0.3 | 1 | 0.3 |
| Release and/or runoff of rainwater at the spring | 0.25 | 1 | 0.25 |
|  |  | Sum (S1) | 2.64 | 0.27 | 0.712 |
| Physical soil integrity | Soil silting | 0.26 | 3 | 0.78 |  |  |
| Earthworks with tools and machinery | 0.1 | 1 | 0.1 |
| Occurrence of erosion | 0.46 | 1 | 0.46 |
| Soil compaction | 0.18 | 1 | 0.18 |
|  |  | Sum (S1) | 1.52 | 0.27 | 0.410 |
| Characteristics of land use and occupation around the spring | Density of the natural vegetation cover in the APP | 0.3 | 3 | 0.9 |  |  |
| Density of the natural vegetation cover in the interface area | 0.14 | 1 | 0.14 |
| Presence of invasive alien species in the APP and interface area | 0.08 | 3 | 0.24 |
| APP isolation and protection | 0.1 | 1 | 0.1 |
| Classes of land use and occupation present in the vicinity of the spring | 0.38 | 1 | 0.38 |
| Presence of buildings |  | 1 |  |
| Presence of industries |  | NA |  |
| Presence of agricultural crops |  | NA |  |
| Presence of livestock activity |  | NA |  |
| Presence of forestry |  | NA |  |
| Fire practices in the area around the spring |  | NA |  |
| Presence of highways. roads or streets |  | 1 |  |
| Presence of sources generating solid particles |  | 1 |  |
| Disposal of common. hazardous and/or urban waste |  | 1 |  |
|  |  | Sum (S1) | 1.76 | 0.46 | 0.809 |
|  |  | SUM (S2) | 1.931 |

Table S8. Result of the 3rd stage for spring N3.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Categories | Parameters | Weight (p) | Grade (n) | (P\*n) | Category weight (pc) | S1\*pc |
| Existence of natural vegetation around the spring | Respect for the APP radius established in Law 12.727 of 2012 (Brazilian Forest Code) | 0.6 | 3 | 1.8 |  |  |
| Vegetation Fragment Quantity Index (IQF)(Area of Fragments within the buffer/Area formed by the 1 kilometer buffer) | 0.4 | 1 | 0.4 |
|  |  | Sum (S1) | 2.2 | 0.6 | 1.32 |
| Characteristics of land use and occupation around the spring | Degree of anthropization of land use and occupation around the spring (Degree of hemerobia) | 1 | 1 | 1 |  |  |
|  |  | Sum (S1) | 1 | 0.4 | 0.4 |
|  |  | SUM (S2) | 1.72 |

Table S9. Final Result for spring N3.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Stage | Categories | S2 | Category weight (pe) | S2\*pe |
| Assessment of environmental conditions in the field | Qualitative monitoring of spring water | 1.931 | 0.65 | 1.255 |
| Interferences at the spring |
| Physical soil integrity |
| Features of use and land occupation around the spring |
| Research on conservation and recovery actions developed | Conservation and recovery actions adopted and developed | 2.14 | 0.1 | 0.214 |
| Assessment of environmental conditions using Geographic Information Systems (GIS) | Existence of natural vegetation around the spring | 1.72 | 0.25 | 0.43 |
| Characteristics of land use and occupation around the spring (Buffer of 1 km) |
|  |  | SUM (S3) | 1.899 |