# Riparian Assessment
## From Waterwatch Queensland 2003

## Conducting a Riparian Vegetation/Habitat Survey

**The Steps**
A. Read the information provided for each factor.
B. Use the field guide ratings to determine a score for each factor.
C. Record your rankings on the Recording Sheet.
D. Interpret your results.

**A.** To assess the health of the riparian vegetation/habitat around the stream you are monitoring, you will need to look at a number of the factors described in this section. For each factor, survey a distance of 100 metres in each direction on both banks (if possible) near your monitoring site.

**1. Bank Vegetation**
Bank vegetation refers to trees, shrubs, grasses, etc. actually growing on the bank. The canopy is the overhanging tree cover. This vegetation provides food and shelter for aquatic organisms in the form of fallen leaves, twigs, branches, etc.

**2. Verge Vegetation**
The stream verge is different from the bank. For this stream habitat survey the verge is considered the section of land up to 30 metres from the water's edge. The verge vegetation can be quite extensive but many streams in urban settings have almost no verge vegetation at all.

**3. In-stream Cover**
Fish and other aquatic organisms require snags, logs and rocks where they can shelter from predators and the current and can reproduce, to help them establish territories and to provide markers that help them navigate. Aquatic plants are also very important for fish and other creatures in the stream; apart from providing food, their presence has a direct effect on the available oxygen in the water, which in turn can affect the type of fish and other animals living in the stream. Protruding snags provide roosting and preening sites for birds.

**3. Bank erosion and stability**
Streams naturally erode, usually on bends (meanders). However, changes in adjacent land areas can cause a stream to become unstable, resulting in continuous erosion along its channel. Such changes include increased run-off from impervious surfaces and piped tributaries, stock access, or direct interference such as straightening or channelling the stream. If it has been channelled or stabilised with concrete banks, the stream will obviously be stable with little erosion, but should not be ranked highly as it has little or no vegetation cover.

**4. Riffles, Pools and Bends**
Rocks and debris in the stream may create shallow areas over which the water rushes quickly to form a rapid. This is called a riffle in the stream system. Upstream of a riffle the water is often quiet and may form a pool. Pools are important in providing deeper areas for fish. Riffles are important for aerating (adding air and therefore oxygen to) the water and providing habitat for many invertebrates. Streams that have a number of pools and riffles are able to support more life and greater variety of species than those that do not vary in character at all.
Larger, slow-flowing rivers may not have riffles, but bends in the river can provide different habitats because the cutting action of the water at bends provides deeper areas and areas of different water speed.

# Habitat Survey Field Guide Ratings

| Excellent | Good | Fair | Poor | Very Poor |
|---|---|---|---|---|
| **Bank Vegetation** | | | | |
| (10) Mainly undisturbed native vegetation. No signs of alteration. | (8) Mainly native vegetation. Little disturbance or no signs of recent site disturbance | (6) Medium cover, mixed native/ introduced. Or one side cleared, the other undisturbed. | (4) Introduced ground cover, little native under or overstory, predominantly introduced vegetation. | (2) Introduced ground cover with lots of bare ground, occasional tree. Also includes sites with concrete lined channels |
| **Verge Vegetation** | | | | |
| (10) Mainly undisturbed native vegetation on both sides of the stream. Verge more than 30m | (8) Well-vegetated wide verge corridor. Mainly undisturbed native vegetation on both sides of stream; some introduced or reduced cover of native vegetation | (6) Wide corridor of mixed native and exotics, or one side cleared and other wide corridor of native vegetation | (4) Very narrow corridor of native or introduced vegetation. | (2) Bare cover or introduced cover such as pasture land. |
| **In Stream cover** | | | | |
| (10) Abundant cover. Frequent snags, logs or boulders with extensive areas of in-stream, aquatic vegetation and overhanding bank. | (8) A good cover of snags. Logs or boulders, with considerable areas of in-stream and overhanging vegetation. | (6) Some snags or boulders present and/or occasional areas of in-stream or overhanging vegetation. | (4) Only slight cover. The stream is largely cleared, with occasional snags and very little in-stream vegetation. Generally no overhanging vegetation. | (2) No cover, no snags, boulders submerged or overhanging vegetation. No undercut banks. Site may have rock or concrete lining. |
| **Bank erosion and Stability** | | | | |
| (5) Stable: no erosion/ sedimentation evident. No undercutting of banks, usually gentle bank slopes, lower banks covered with root mat grasses, reeds or shrubs. | (4) Only spot erosion occurring, little undercutting of bank, good vegetation cover, usually gentle bank slopes, no significant change to bank structure. | (3) Localised erosion evident. A relatively good vegetation cover. No continuous damage to bank structure or vegetation. | (2) Significant active erosion evident especially during high flows. Unstable, excessive areas of bare banks, little vegetation cover. | (1) Extensive or almost continuos erosion. Over 50% of banks have some form of erosion: very unstable with little vegetation cover. |

# Stream Habitat Record Sheet

| Name of Monitoring Group |
|---|

| Person(s) conducting Survey/Test |
|---|

| Date of Survey/Test / / | **Easting** (four digits) |
|---|---|
| **Time of Survey/Test** am/pm | **Northing** (five digits) |
| **Length of stream examined** m | |

**Stream Habitat Rating**

Circle your stream's rating for each factor in the table below.

| Rating | Bank Vegetation | Verge Vegetation | In Stream Cover | Bank erosion and stability | Riffles, pools and bends |
|---|---|---|---|---|---|
| Excellent | (10) | (10) | (10) | (5) | (5) |
| Good | (8) | (8) | (8) | (4) | (4) |
| Fair | (6) | (6) | (6) | (3) | (3) |
| Poor | (4) | (4) | (4) | (2) | (2) |
| Very Poor | (2) | (2) | (2) | (1) | (1) |

Add up all the numbers you circles for a total score:
(The minimum score from this rating table 8 and the maximum is 40)

Total Score:

Compare your stream's total score with the range of scores below to assess the stream habitat rating of your site.

| Rating | Scores |
|---|---|
| Excellent | 36-40 |
| Good | 29-35 |
| Fair | 20-28 |
| Poor | 12-19 |
| Very Poor | 8-11 |

Stream Habitat Rating:

**D Interpreting your results**

| | |
|---|---|
| **Excellent:** | Site in Natural or virtually natural condition: excellent habitat condition. |
| **Good:** | Some alteration from natural state: good habitat conditions |
| **Fair:** | Significant alterations form the natural state but still offering moderate habitat; stable. |
| **Poor:** | Significant alterations from the natural state, with reduced habitat value; may have erosion or sedimentation problems. |
| **Very Poor:** | Very degraded, often with severe erosion or sedimentation problems. |
| | |

## Total Score: