

Caddis-flies (Insecta: Trichoptera) of the World Heritage Area in Tasmania—species composition and distribution

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Abstract. Neboiss, A., Jackson, J. and Walker, K. 1989. Caddis-flies (Insecta: Trichoptera) of the World Heritage Area in Tasmania – species composition and distribution. *Occasional Papers from the Museum of Victoria* 4: 1-41.

Published data on Trichoptera (caddis-flies) from the Tasmanian World Heritage Area, supplemented by information obtained mainly from material collected during an expedition to the Lower Gordon river area in 1977 and Wildlife Research Expeditions to the South-west in 1988, are tabulated. Distributions are discussed and found that 131 species (79%) of the 166 Tasmanian species are within the World Heritage Area.

Introduction

The Trichoptera are an ecologically important group, with greater diversity in various habitats than any other insect order with wholly aquatic larvae (Mackay and Wiggins, 1979). They inhabit almost every type of freshwater habitat. The larvae are involved in all the trophic processes of a freshwater ecosystem and are an important food item for various fish species (Jackson, 1978; Hurtle and White, 1980; Otto and Svensson, 1980) and other aquatic animals, including the platypus (Faragher et al., 1979).

One hundred and sixty six (166) species in 21 families have so far been recorded in Tasmania (Neboiss, 1986) and more than 70% are endemic (Neboiss, 1977). Some families (Kokiriidae, Tasimiidae, Helicophidae and Philorheithridae) have transantarctic distributions (Neboiss, 1986, Flint, 1979, Winterbourn 1980) so the Tasmanian fauna, particularly that of the South-west, is biogeographically important. Several families (Chathamidae, Oeconesidae, Calocidae and Conoesucidae) show close affinities with the New Zealand fauna, and one (Oeconesidae) is not found on the Australian mainland. Therefore, the distribution of Tasmanian Trichoptera deserves extensive investigation before a full understanding of their biogeography is reached.

The Tasmanian World Heritage Area (WHA) contains both extensive and diverse freshwater habitats which still remain largely unexplored. Any survey in this area will undoubtedly extend the range of known species, provide much needed information on their biology, and very likely will reveal undescribed species.

Extensive collecting was carried out in Tasmania between 1965 and 1975 (Neboiss, 1977). Many of these localities are now within the boundaries of WHA and provide valuable baseline data. Further investigations have been conducted by the Zoology Department of the University of Tasmania, the Inland Fisheries Commission, and the Australian and New Zealand Scientific Exploration Society (ANZSES). Results from expeditions to New River Lagoon, 1978-1979 have been described by McEvey (1980) and to the Franklin River area, Jan-Feb 1983, published by Malcolm (1987). The results from a 1977 expedition to the lower Gordon-Olga river area (A. Neboiss participating) are extensive and particularly interesting as they link the northern and southern sections of the WHA. Data extracted from all these sources have

been incorporated into this report with new material from WHA research expeditions in Jan-Mar 1988.

A taxonomic study of the family Conoesucidae undertaken by one of us (J. Jackson) is in progress and laboratory rearing of larvae to adults has already enabled specific identification of some larvae of Conoesucidae, Helicophidae and Calocidae. The Conoesucidae are the second most diverse of the case-making families in Australia and larvae are abundant in most lotic habitats in Tasmania which is the centre of radiation for the family. Of the 21 Australian species, 17 occur in Tasmania and 14 are endemic. In comparison, only 16 species are known from New Zealand (Neboiss, 1986). The family separation and relationships are incompletely understood and only detailed information on their immature stages will provide the solution (Ross, 1967; Neboiss, 1977; Hynes, 1984).

The immediate and future use of this report will be to provide a baseline study for any future environmental impact study on either terrestrial or aquatic disturbances. Both will reflect a change in the caddis-fly species composition and diversity of the streams surrounding the disturbed area.

Area

The WHA has been divided into six investigation areas (Map 1). Information from a section of the Huon River and its tributaries between Blakes Opening and Arve River junction just outside the WHA, has been appended as Investigation Area 7 because it includes a large, deep water river system.

Results from 61 collecting sites are presented (Maps 2-8). Sites where only a few specimens were collected are not listed separately but combined with the nearest major site. These are indicated on maps with smaller numerals e.g., To 8.

Investigation area 1: Waldheim and Lake Dove area (Map 2). The vicinity of Waldheim at the extreme northern end of WHA has been visited by many entomologists over a long time, but little has been published on Trichoptera. Specimens collected by Tonnoir in 1922-1923 found their way to the Brussels Museum and formed the basis of two publications by Jacquemart (1965a, b). Publications by Mosely and Kimmins (1953) and Neboiss (1962, 1977) added many other species.

This investigation area includes 6 sites, all within 2 km of Waldheim, and have been amalgamated into one site (Site 1 A–F). Most of the Park, from Cradle Mt to Lake St Clair, remains unexplored for aquatic insects (Trichoptera).

Investigation area 2: Seven main collecting sites (2–8) located either at the southern end of Lake St Clair or along the Lyell Highway between the eastern and western boundaries of the WHA (Map 3). Almost all collecting sites in this area are associated with comparatively large, fast flowing rivers. Two were lacustrine (Sites 3, 5).

Investigation area 3: Six collecting sites (9–14) restricted to a small mountainous area in Frenchmans Cap National Park (Map 4). They are at an approximate altitude of 1000 m and situated in the vicinity of small mountain lakes with small in-or out-flowing streams. Ms J. Jackson was the first to collect (January 1988) Trichoptera in this area.

Investigation area 4: 13 collecting sites (15–27) on the Lower Gordon River below Gordon Dam, and its tributaries (Map 5). All information is based on material collected by Neboiss and a team from the University of Tasmania Department of Zoology in January, 1977. A variety of habitats was sampled with mercury vapour light traps. At this time, the main water flow of Gordon River was already stopped by the HEC dam at Strathgordon. The main source of water was the inflow from the tributaries.

Investigation area 5: 16 sites (Map 6), of which 12 are on the shores of the present Lake Pedder impoundment. One (Site 32) was on the original Lake Pedder before flooding in 1972, and two are on the banks of inflowing streams – Sandfly Creek (Site 30) and Condominium Creek (Site 31). Site 29 is on Wedge River which drains into Lake Gordon. Some of the sites were investigated during 1965–1966 by Neboiss before disturbance of the surrounding environment. The specimens from the sites on shores of Lake Pedder impoundment during 1988 were collected by Jackson, Chilcott and Fulton.

Investigation area 6: 11 scattered, southern sites (44–54) (Maps 7 and 8). Although mountain ranges occupy considerable sections of the area, very little collecting of Trichoptera has been possible at higher altitudes and in mountain lakes because of the difficulty in access with light trap equipment. These places, however, are the most promising for unusual and interesting species, which could hold information on some relic fauna, and taxa with Transantarctic relationships.

Investigation area 7: Seven sites (55–61) in part of the Huon River and its tributaries eastward from the WHA boundary to the Arve River junction (Map 8). Extensive collecting with light traps was carried out between 1967 and 1972 by Riek and Neboiss to which is added recent collection data by Chilcott. This provides good baseline data for the period before the destruction of forests by the woodchip industry.

Methods

Adults were collected directly into 80% ethanol. Almost all the material was placed in small glass vials, preserved and permanently stored in ethanol. Only a small number of specimens have been dry mounted.

Larvae and pupae were collected by hand picking them from substrate rocks, submerged wood, aquatic plants or sieving of loose substrate. Samples of moss, plants and leaf litter were taken for later sorting in the laboratory. Specimens required for rearing to adults were transported alive, others were preserved in Kahle's fluid (Wiggins, 1977) which is superior to alcohol for fixing specimens extracted from water.

Larvae and pupae to be reared, were placed in small plastic containers with few centimetres of water, aerated with compressed air through a pipette and kept at 15°C. Some sand, leaves and/or algae were added to provide food and case material; transparent lids prevented escape of emerged adults.

For adult collecting during the day and in the early hours of evening the customary hand net was used. Riparian vegetation was swept in the vicinity and along the banks of streams as well as low scrub on buttongrass plains and hillsides with water seepage areas. During late evenings and nights, specimens were attracted by mercury vapour light and captured in traps or on a white sheet.

A portable 240V generator with 300W to 1000W output, pending on availability, was used as the power unit for MV 150–500 W blended or clear glass lamps. It was noted that at higher altitudes specimens were active and attracted to light at lower temperature than at lowlands.

Results

The caddis-fly material accumulated and examined over a period of twenty years, from the area which is now within the boundaries of the WHA, numbers well over 80,000 specimens. Of these, nearly 5,000 were collected during the 1988 Wildlife Research Expeditions.

Of the 166 Trichoptera species recorded from Tasmania (Neboiss, 1986), 131 species or nearly 79% of the Tasmanian fauna, occur within the WHA. Another 20 undescribed species have now been recognized, and these will be described in a future publication. It is not possible to find a higher concentration of caddis-fly species in an area of comparable size elsewhere in Australia. Several families, widely distributed in the eastern part of the State, are almost or entirely absent from the WHA. These include Tasimiidae, Helicopsychidae, Helicophidae (genus *Helicophya*) and Calamoceratidae.

Highest species diversity is found in the Lower Gordon River area (Area 4) with 90 recorded species (Table 1). The second highest is the Lake Pedder impoundment area (Area 5) with 76 recorded species. Here, however, the diversity is not even throughout. It is much higher in the stream samples – Sandfly creek (Site 30), Condominium creek (Site 31) and Wedge river (Site 29), whereas the lake samples show considerably lower species diversity. The light trap sample from Frankland shore (Site 38) registered only 23 species compared with 40 species from Sandfly creek.

The third highest species diversity was recorded from Investigation Area 6 with 72 species. The sites are widely separated and in a variety of habitats thus providing a good cross-section of most families.

Six species – *Apsilochorema obliquum* (Mosely), *Ethochorema nesydrion* (Neboiss), *Plectrocnemia altera* Neboiss, *Alloecella longispina*, Jacquemart, *Atriplectides dubius* Mosely and *Triplectides bilobus* Neboiss have been recorded from all Areas. A further 17 species are known from six of the seven Investigation Areas. In contrast, species known from a single locality and by only a few specimens are, *Taskiria mccubbini* Neboiss, *Taskiropsyche lacustris* Neboiss, *Tascuna ignota* Neboiss, *Westriplectes pedderensis* Neboiss, or from a single specimen – *Nanoplectrus truchanasi* Neboiss, *Archaeophylax vernalis* Neboiss, *Hydrobiosella orba* Neboiss and *Costora krene* Neboiss. Several little known and zoogeographically interesting species – *Archaeophylax vernalis*, *Costora krene*, *Hydrobiosella orba*, *Tasmanoplegas spilota* Neboiss, *Tascuna ignota* and *Westriplectes pedderensis* were captured during the 1977–1988 research expeditions, so expanding knowledge of their distributions, habitat preferences and biology. Other species recorded for the first time from the WHA are *Costora delora* Mosely, *Conoesucus fromus* Mosely and *Aphilorheithrus luteolus* Neboiss. *Alloecella grisea* Banks and *Conoesucus digitiferus* Jacquemart were found to be widespread.

Highest numbers of species from a single nights collecting are from: Dove River near the outflow from Dove Lake (Site 1D) 33 species; Sir John Falls, Cataract Creek (Site 16) 30 species; Franklin River – Roaring Creek junction (Site 17) 44 species; Gordon River above First Split (Site 22) 40 species; Olga River 19 km above Gordon River junction (Site 26) 44 species; Sandfly Creek (Site 30) 40 species; Old River and Collins River junction (Site 46) 36 species and Huon – Picton River junction (Site 59) 37 species.

The sequence of species in the presented tables is not alphabetic but rather is in accordance with the currently accepted systematic arrangement. All species known from Tasmania are listed to highlight gaps in the fauna of the WHA.

Discussion

The aquatic insect fauna in general, and caddis-flies in particular, of the Tasmanian World Heritage Area make an important contribution to the study of the Australian insect fauna

because of its unique geographic situation. The combination of streams, lakes and sedgeland, commonly referred to as button-grass plains, is not found elsewhere in Australia. The presence and survival of species in these habitats depend on seasonally fluctuating rainfall, water levels and temperatures. Most of Tasmania's highest rainfall areas, with falls exceeding 2500 mm p.a., occur within this area. Changes in surface vegetation in catchment areas is reflected in stream character by increasing silt deposition, water temperature, and disrupting water level fluctuations. Aquatic insect ecology, species diversity and composition are consequently affected. (Blyth et al., 1984).

Caddis-fly distributions, and abundance are only now gradually being investigated and understood. Very little economic value has been attached to the caddis-fly fauna until recently when their potential as pollution level indicators (Resh and Unzicker, 1975) and their trophic value was realized (Hellowell, 1986). Caddisflies constitute a significant portion of the food chain in freshwater ecosystems. The species distribution throughout the environment is not uniform and their tolerance to environmental conditions determines their value as indicator species. Common and readily identifiable taxa are the most useful.

Tasmanian caddis-fly fauna provide strong evidence in support of transantarctic relationships. The families Tasimiidae, Kokiriidae, Helicophidae and Philorheithridae (Wiggins, 1984) and the Triplectidinae genus *Notalina* (Holzenthal, 1986) having counterparts in both continents. Tasmania, as the most southern extension of the Australian continent, and the unique climatical conditions, has retained many relic taxa. Two particularly interesting species belonging to the transantarctic family Kokiriidae were found at the original Lake Pedder. Both species *Taskiria maccubini* and *Taskiropsyche lacustris* have not been collected after the flooding of the lake in 1972, and as both were associated with the specific lacustrine habitat, may have become extinct when the water level rose. Their life histories remain unknown. Continued taxonomic and ecological studies will undoubtedly provide information on evolutionary processes.

Acknowledgements

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Collecting site register

(Note: The Map Grid Reference refers to the 1:100,000 map series with the first number (eg. 8014) indicating the map number and the second number (119897) the grid reference.)

Site No. 1 Investigation Area 1 Various collectors 1965-1976 Waldheim, Cradle Mt, Dove River, Lake Lilla. Map Grid Reference 8014 119897 41°38'S 145°56'E Combined localities. Sites 1 A-F. Refer to Map 2.

Site No. 2 Investigation Area 2 Various collectors 1965-1976 Derwent River Bridge. Map Grid Reference 8113 346364 42°07'S 146°12'E River section 0.5 km below Lake St Clair dam.

Site No. 3 Investigation Area 2 Various collectors 1965-1976 Lake St Clair (south end). Map Grid Reference 8113 313372 42°07'S 146°09'E South end and Hugel River inflow. (8113 312376).

Site No. 4 Investigation Area 2 J. Jackson 22 Feb 1988 Navarre River. Map Grid Reference 8113 302293 42°11'S 146°09'E.

Site No. 5 Investigation Area 2 J. Jackson 22 Feb 1988 Lake Dixon. Map Grid Reference 8113 261321 42°10'S 146°07'E Upper Reaches of Franklin River.

Site No. 6 Investigation Area 2 A. Neboiss 1972 Arrowsmith Creek. Map Grid Reference 8113 251262 42°13'S 146°03'E.

Site No. 7 Investigation Area 2 Various collectors 1965-1988 Franklin River. Map Grid Reference 8113 190257 42°13'S 146°01'E.

Site No. 8 Investigation Area 2 A. Neboiss and J. Jackson. 1965-1988 Collingwood River. Map Grid Reference 8013 113314 42°10'S 145°55'E Includes specimens from Cardigan River (8013 034354) coll. J. Jackson.

Site No. 9 Investigation Area 3 J. Jackson 29 Jan 1988 Lake Tahune, Frenchmans Cap National Park. Map Grid Reference

8013 038198 42°17'S 145°51'E.

Site No. 10 Investigation Area 3 J. Jackson 29 Jan 1988 Artichoke Valley, Frenchmans Cap National Park. Map Grid Reference 8013 048196 42°17'S 145°51'E.

Site No. 11 Investigation Area 3 J. Jackson 29 Jan 1988 Lake Gwendolen, Frenchmans Cap National Park. Map Grid Reference 8013 028203 42°17'S 145°51'E.

Site No. 12 Investigation Area 3 J. Jackson 29 Jan 1988 Lake Whitham, Frenchmans Cap National Park. Map Grid Reference 8013 071163 42°17'S 145°51'E.

Site No. 13 Investigation Area 3 J. Jackson 29 Jan 1988 Lake Nancy, Frenchmans Cap National Park. Map Grid Reference 8013 033207 42°17'S 145°51'E.

Site No. 14 Investigation Area 3 J. Jackson 29 Jan 1988 Lake Vera, Frenchmans Cap National Park. Map Grid Reference 8013 079194 42°17'S 145°51'E.

Site No. 15 Investigation Area 4 A. Neboiss and D. Coleman 9 Jan 1977 Gordon River, 8 km below Butler Is. Map Grid Reference 8012 913928 42°30'S 145°40'E Unnamed lake on east bank.

Site No. 16 Investigation Area 4 A. Neboiss, D. Coleman and P. Allbrook. 9 Jan 1977 Sir John Falls, Cataract Creek, trib. of Gordon River. Map Grid Reference 8012 925858 42°34'S 145°41'E.

Site No. 17 Investigation Area 4 A. Neboiss, D. Coleman and P. Allbrook 8 Jan 1977 Franklin River, Roaring Creek junction, 1 km above Gordon River. Map Grid Reference 8012 965845 42°35'S 145°45'E. Includes ANZSES 1983 expedition material 8–22 Jan 1983.

Site No. 18 Investigation Area 4 A. Neboiss 13 Jan 1977 Gordon River, 0.5 km above Sprent River junction. Map Grid Reference 8012 975797 42°38'S 145°45'E.

Site No. 19 Investigation Area 4 A. Neboiss 7–15 Jan 1977 Gordon River, Smith River junction area. Map Grid Reference 8012 017735 42°41'S 145°48'E Includes specimens from Harrison Creek junction.

Site No. 20 Investigation Area 4 A. Neboiss, R. Swain, D. Coleman and P. Allbrook 10 Jan 1977 Maxwell-Denison River junction. Map Grid Reference 8012 073727 42°41'S 145°52'E.

Site No. 21 Investigation Area 4 D. Coleman and P. Allbrook 11 Jan 1977 Gordon River at Denison River junction. Map Grid Reference 8012 044697 42°44'S 145°50'E.

Site No. 22 Investigation Area 4 A. Neboiss, R. Swain, D. Coleman and P. Allbrook 11 Jan 1977 Gordon River, 0.5 km above first split. Map Grid Reference 8012 064669 42°44'S 145°51'E.

Site No. 23 Investigation Area 4 A. Neboiss, R. Swain, D. Coleman and P. Allbrook 12 Jan 1977 Gordon River, 0.5 km below second split. Map Grid Reference 8012 073667 42°44'S 145°52'E.

Site No. 24 Investigation Area 4 A. Neboiss 12 Jan 1977 2 km below Serpentine River junction. Map Grid Reference 8012 134667 42°44'S 145°56'E.

Site No. 25 Investigation Area 4 A. Neboiss 13 Jan 1977 Olga River, 4 km above Gordon River junction. Map Grid Reference 8012 001692 42°43'S 145°47'E Collected by hand on buttongrass and river areas.

Site No. 26 Investigation Area 4 A. Neboiss and R. Swain 13 Jan 1977 Olga River, 19 km above Gordon River junction. Map Grid Reference 8012 040547 42°51'S 145°50'E Collected on buttongrass swamp area with MV-light.

Site No. 27 Investigation Area 4 D. Coleman and P. Allbrook 13 Jan. 1977 Olga River, 19 km above Gordon River junction. Map Grid Reference 8012 040547 42°51'S 145°50'E Collected by MV-light at riverside.

Site No. 28 Investigation Area 5 J. Sedlacek Jan 1977 Strathgordon, Creek at Teds Beach Map Grid Reference 8112 232625 42°46'S 146°03'E.

Site No. 29 Investigation Area 5 Various collectors 1965–1988 Wedge River at Gordon River Road. Map Grid Reference 8112 372544 42°52'S 146°14'E.

Site No. 30 Investigation Area 5 A. Neboiss, K. Walker and J. Jackson 9 Feb 1988 Sandfly Creek on Scotts Peak Dam Road. Map Grid Reference 8112 485493 42°54'S 146°22'E Includes several localities a few kms N and S of Sandfly Creek.

Site No. 31 Investigation Area 5 A. Neboiss, K. Walker and J. Jackson. 9 Feb 1988 Condominium Creek on Scotts Peak Dam

Road Map Grid Reference 8112 479434 42°58'S 146°22'E Includes a few specimens from Twin Creek (8112 483413), J. Jackson.

Site No. 32 Investigation Area 5 A. Neboiss 1965–1972 Lake Pedder Map Grid Reference 8112 343440 42°57'S 146°12'E Collections before 1972 flooding of Lake Pedder.

Site No. 33 Investigation Area 5 S. Chilcott and J. Jackson 29 Feb. 1988 Lake Pedder impoundment, Edgar Dam beach west side. Map Grid Reference 8111 465357 43°02'S 146°21'E.

Site No. 34 Investigation Area 5 S. Chilcott and J. Jackson 29 Feb 1988 Lake Pedder impoundment, near Edgar Dam beach boat ramp. Map Grid Reference 8111 427352 43°02'S 146°20'E.

Site No. 35 Investigation Area 5 S. Chilcott and J. Jackson 29 Feb 1988 Huon River below Scotts Peak Dam. Map Grid Reference 8111 427352 43°02'S 146°18'E.

Site No. 36 Investigation Area 5 S. Chilcott and J. Jackson 2 Mar 1988 Lake Pedder impoundment, Giblin Bay. Map Grid Reference 8111 358364 43°01'S 146°13'E.

Site No. 37 Investigation Area 5 S. Chilcott and J. Jackson 2 Mar 1988 Lake Pedder impoundment, Pebbly Creek south branch. Map Grid Reference 8112 352395 43°00'S 146°12'E.

Site No. 38 Investigation Area 5 S. Chilcott and J. Jackson 2 Mar 1988 Lake Pedder impoundment, Frankland shore. Map Grid Reference 8112 284422 42°58'S 146°08'E Camp site and other nearby localities.

Site No. 39 Investigation Area 5 S. Chilcott and J. Jackson 1 Mar 1988 Lake Pedder impoundment, Crumbledown shore, Timber Creek. Map Grid Reference 8112 272452 42°56'S 146°06'E.

Site No. 40 Investigation Area 5 S. Chilcott and J. Jackson 3 Mar 1988 Lake Pedder impoundment, Forest Creek draining Lake Ampulla Map Grid Reference 8112 222493 42°54'S 146°03'E.

Site No. 41 Investigation Area 5 S. Chilcott and J. Jackson 3 March 1988 Lake Pedder impoundment, Helder Inlet Map Grid Reference 8112 298533 42°52'S 146°08'E.

Site No. 42 Investigation Area 5 S. Chilcott and J. Jackson 3 March 1988 Lake Pedder impoundment, Bonnet Bay Map Grid Reference 8112 301490 42°55'S 146°09'E.

Site No. 43 Investigation Area 5 S. Chilcott and J. Jackson 2 March 1988 Lake Pedder impoundment, Maria Creek. Map Grid Reference 8112 420503 42°54'S 146°17'E.

Site No. 44 Investigation Area 6 A. Neboiss 1965–1966 West Arthur Plains, Junction Creek. Map Grid Reference 8111 408271 43°06'S 146°16'E.

Site No. 45 Investigation Area 6 A. Neboiss 1966 Cracroft River Crossing. Map Grid Reference 8111 574221 43°09'S 146°29'E.

Site No. 46 Investigation Area 6 A. Neboiss, K. Walker and J. Jackson 10 Feb 1988 Old River and Collins River junction. Map Grid Reference 8111 460092 43°16'S 146°20'E.

Site No. 47 Investigation Area 6 J. Jackson 12–15 Jan 1988 Mulcahy Bay, Alex Rivulet. Map Grid Reference 8011 971253 43°07'S 145°44'E Includes several nearby sites.

Site No. 48 Investigation Area 6 A. Neboiss and K. Walker 12–13 Feb. 1988 Melaleuca Creek, Melaleuca Map Grid Reference 8111 311919 43°25'S 146°09'E.

Site No. 49 Investigation Area 6 S. Chilcott et al. 10 Feb 1988 Ray River. Map Grid Reference 8111 405895 43°27'S 146°16'E.

Site No. 50 Investigation Area 6 S. McEvey Dec 1978–Jan 1979 Louisa Creek. Map Grid Reference 8111 473854 43°29'S 146°21'E ANZSES New River Expedition.

Site No. 51 Investigation Area 6 S. McEvey and J. Jackson. Dec 1978/Feb 1988 New River Lagoon, Limestone and Urquart Creeks. Map Grid Reference 8211 658838 43°30'S 146°35'E ANZSES New River expedition–Cavers camp.

Site No. 52 Investigation Area 6 A. Neboiss and K. Walker 16 Feb 1988 Pigsty Ponds area, d'Entrecasteaux River source. Map Grid Reference 8211 782844 43°30'S 146°44'E.

Site No. 53 Investigation Area 6 A. Neboiss and K. Walker 16 Feb 1988 Maxwell Ridge, Reservoir Lakes, Picton River source. Map Grid Reference 8211 781853 43°29'S 146°44'E.

Site No. 54 Investigation Area 6 A. Neboiss and K. Walker 17 Feb 1988 d'Entrecasteaux River at South Cape Road bridge. Map Grid Reference 8210 898827 43°31'S 146°52'E.

Site No. 55 Investigation Area 7 A. Neboiss 1966 Huon River

at Blakes opening. Map Grid Reference 8211 690279 43°06'S 146°37'E.

Site No. 56 Investigation Area 7 S. Chilcott 9 Mar 1988 Tomalah Creek. Map Grid Reference 8211 729292 43°06'S 146°40'E.

Site No. 57 Investigation Area 7 S. Chilcott 9 Mar 1988 Kroanna Creek. Map Grid Reference 8211 734290 43°06'S 146°43'E.

Site No. 58 Investigation Area 7 S. Chilcott 9 Mar 1988 Trugara Creek. Map Grid Reference 8211 756287 43°06'S 146°43'E.

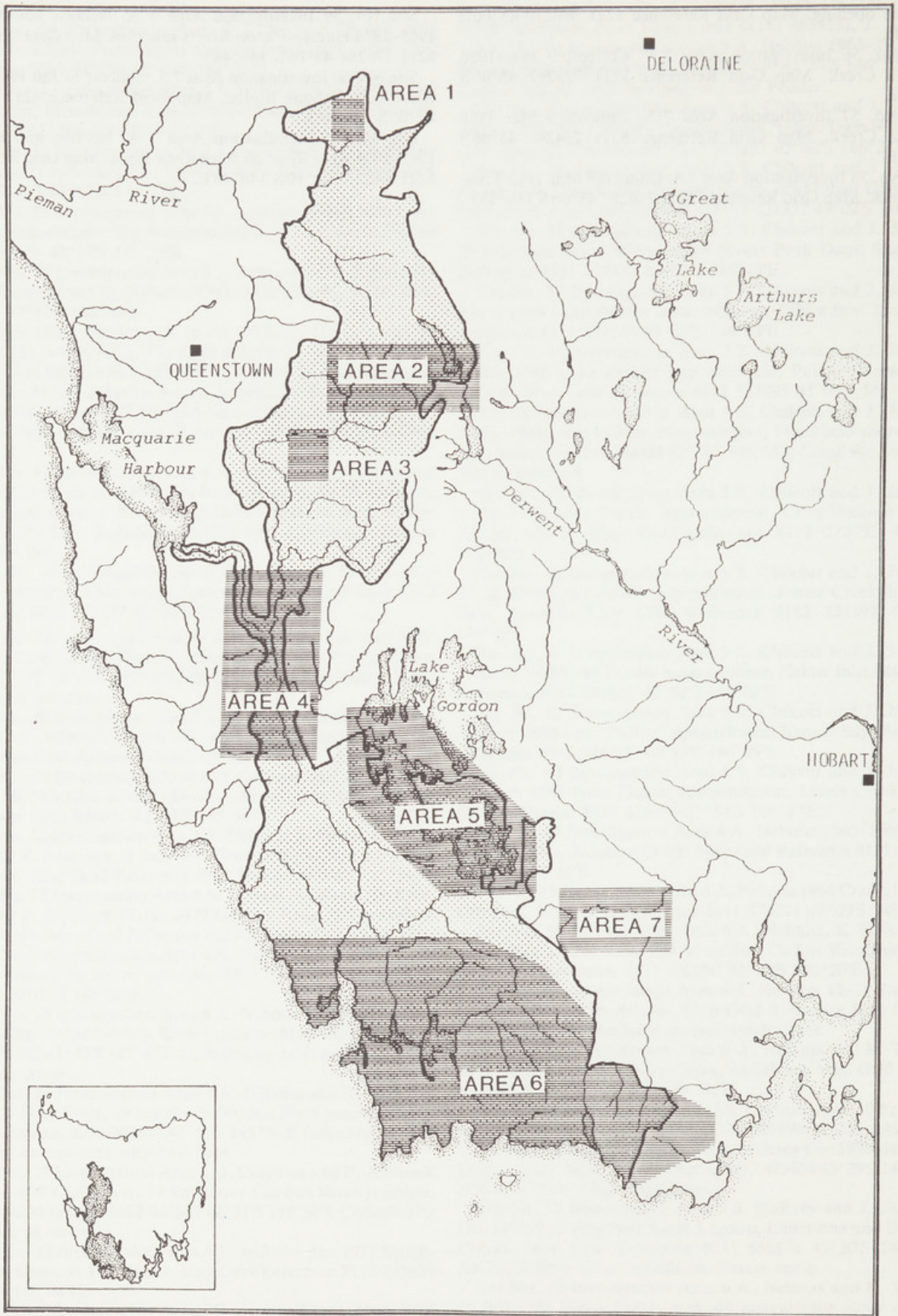
Site No. 59 Investigation Area 7 A. Neboiss and E. Riek 1965–1974 Huon–Picton Rivers junction. Map Grid Reference 8211 776284 43°06'S 146°44'E.

Site No. 60 Investigation Area 7 S. Chilcott 14 Jan 1988 Huon River near Tahune Bridge. Map Grid Reference 8211 778285 43°06'S 146°44'E.

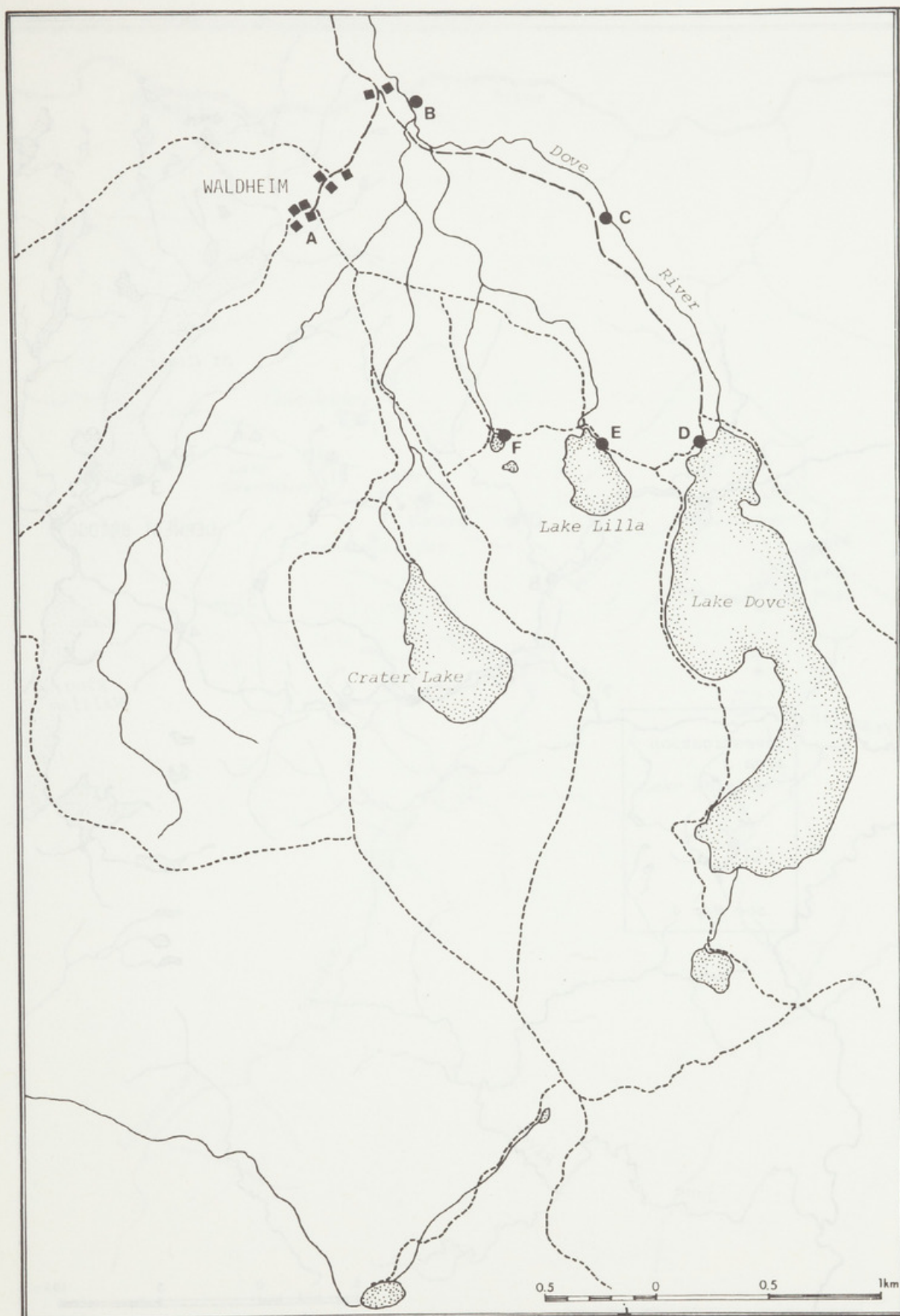
Site No. 61 Investigation Area 7 A. Neboiss and E. Riek 1965–1974 Arve River on Arve River Road. Map Grid Reference 8211 842214 43°10'S 146°48'E.



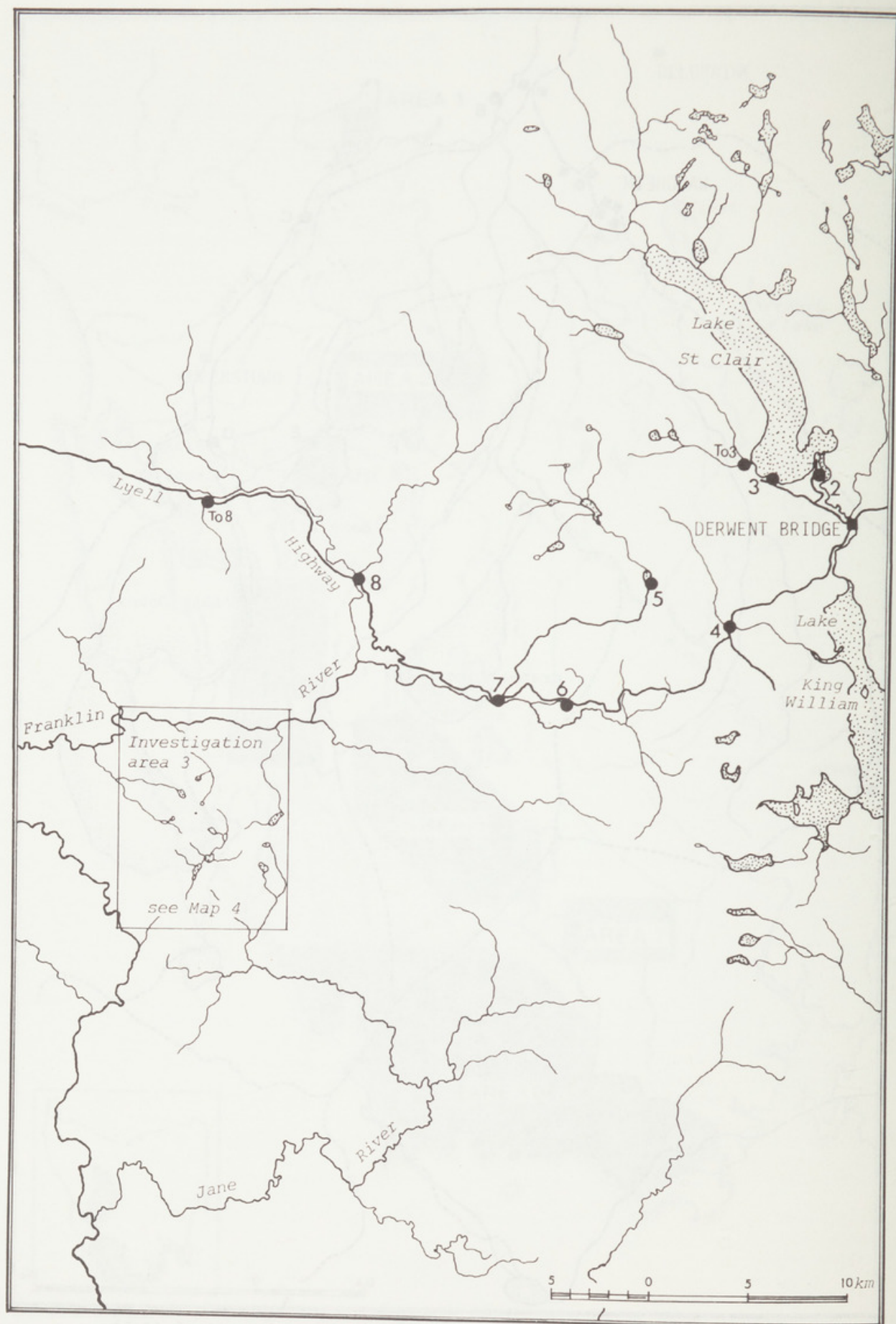
Fig. 1. Map of the study area showing the location of the investigation sites.



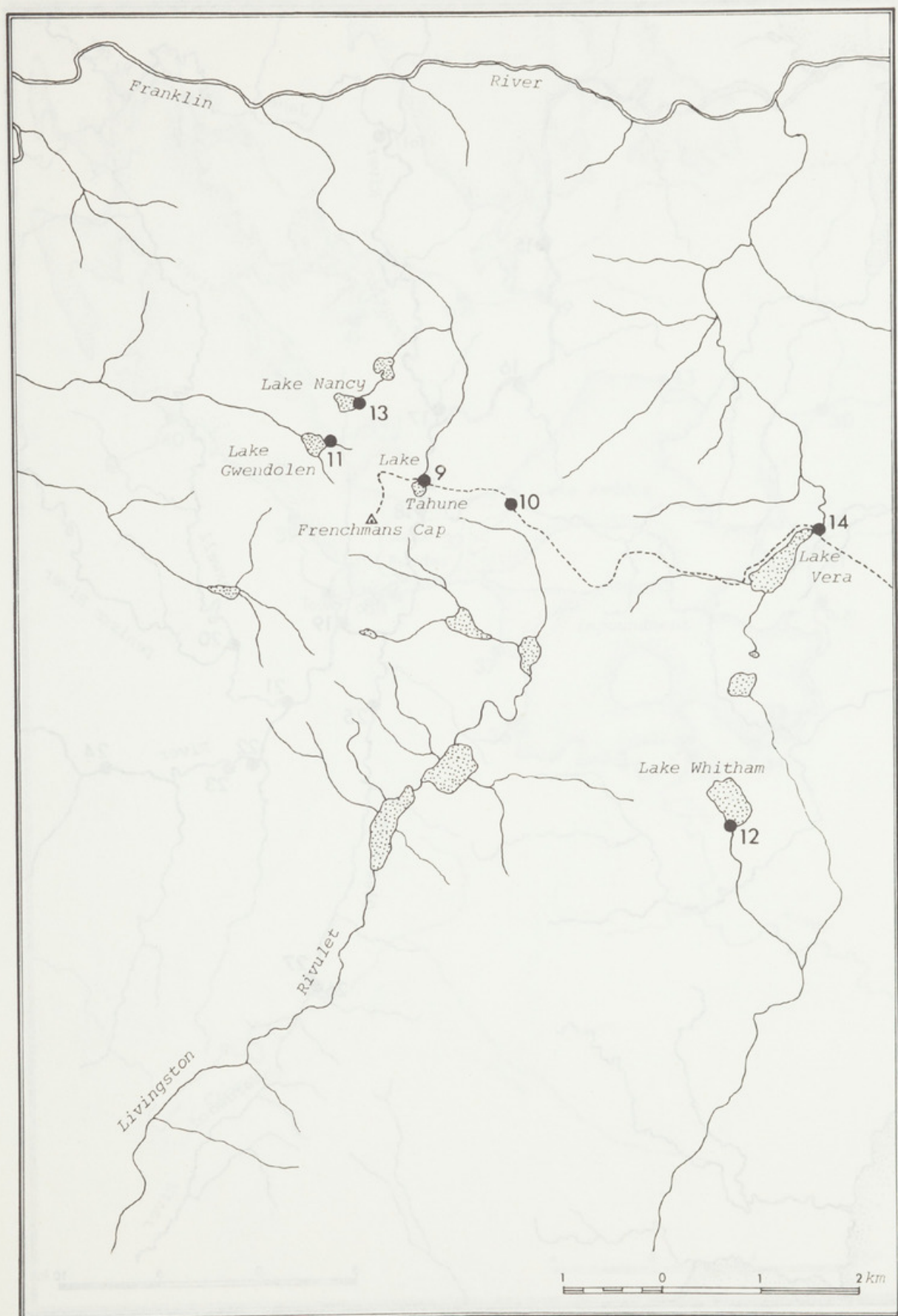
Map. 1. World Heritage Area, SW Tasmania. Trichoptera investigation areas 1 to 7



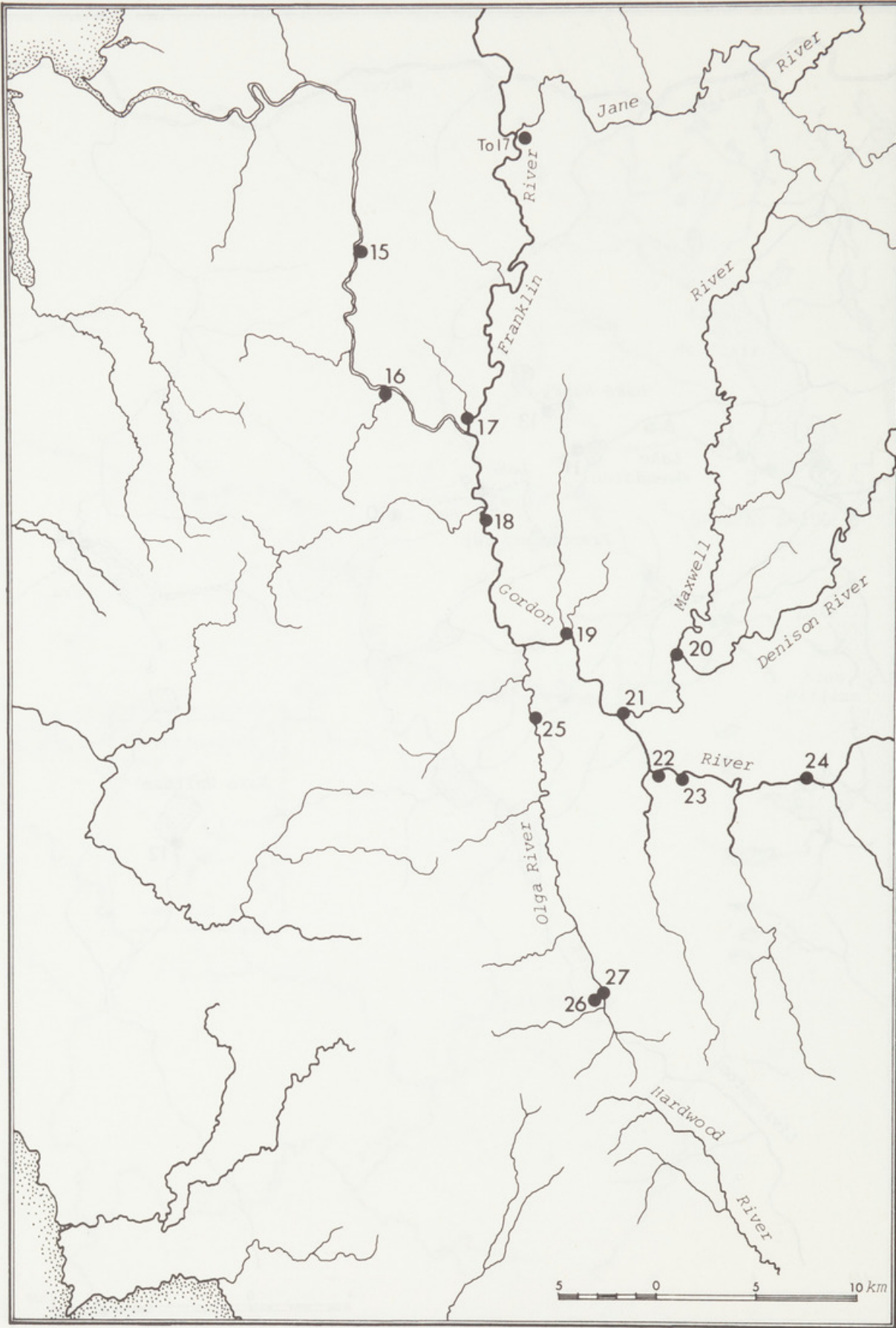
Map. 2. Investigation Area 1; Combined collecting site 1 (A-F)



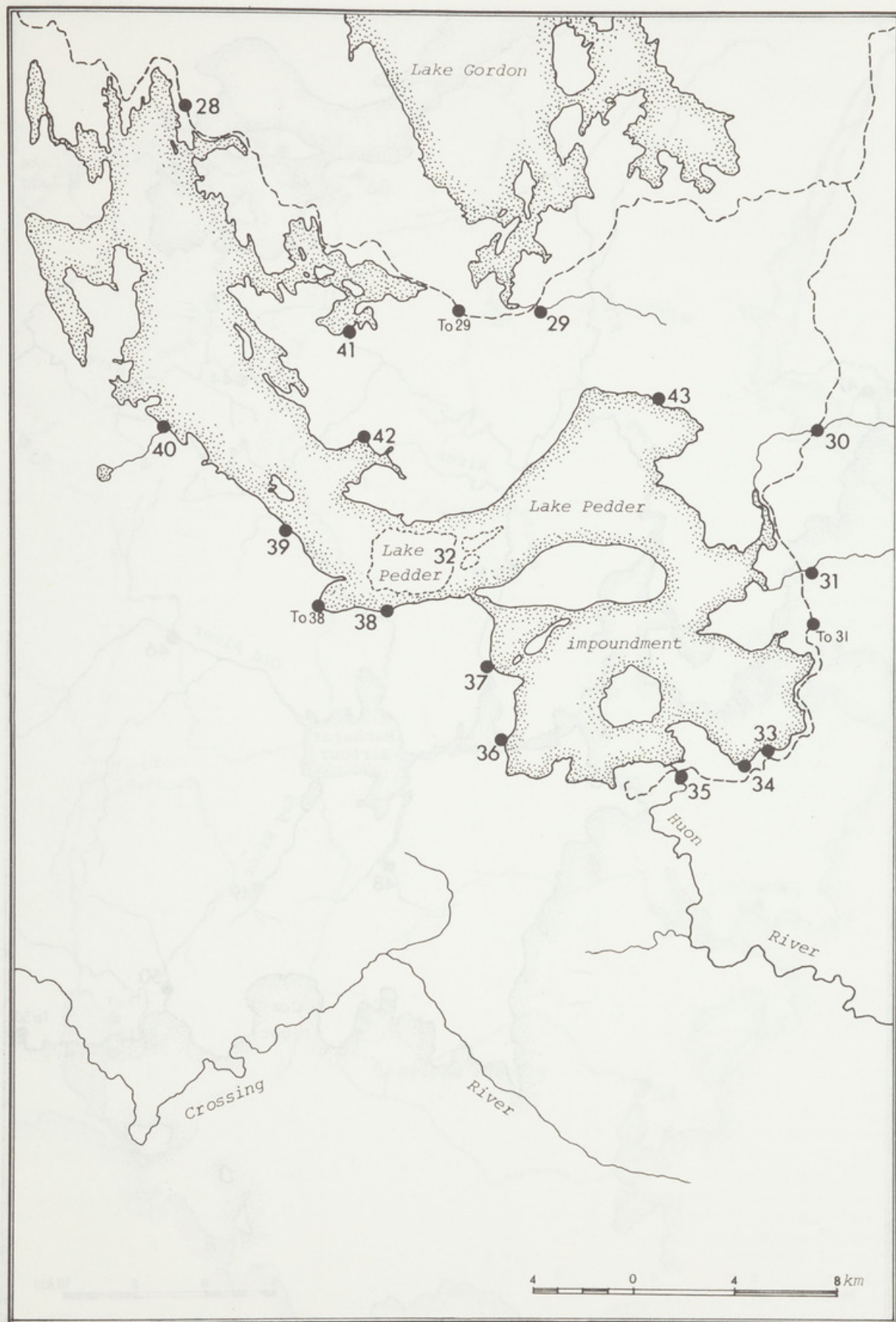
Map. 3. Investigation Area 2; Collecting sites 2-8



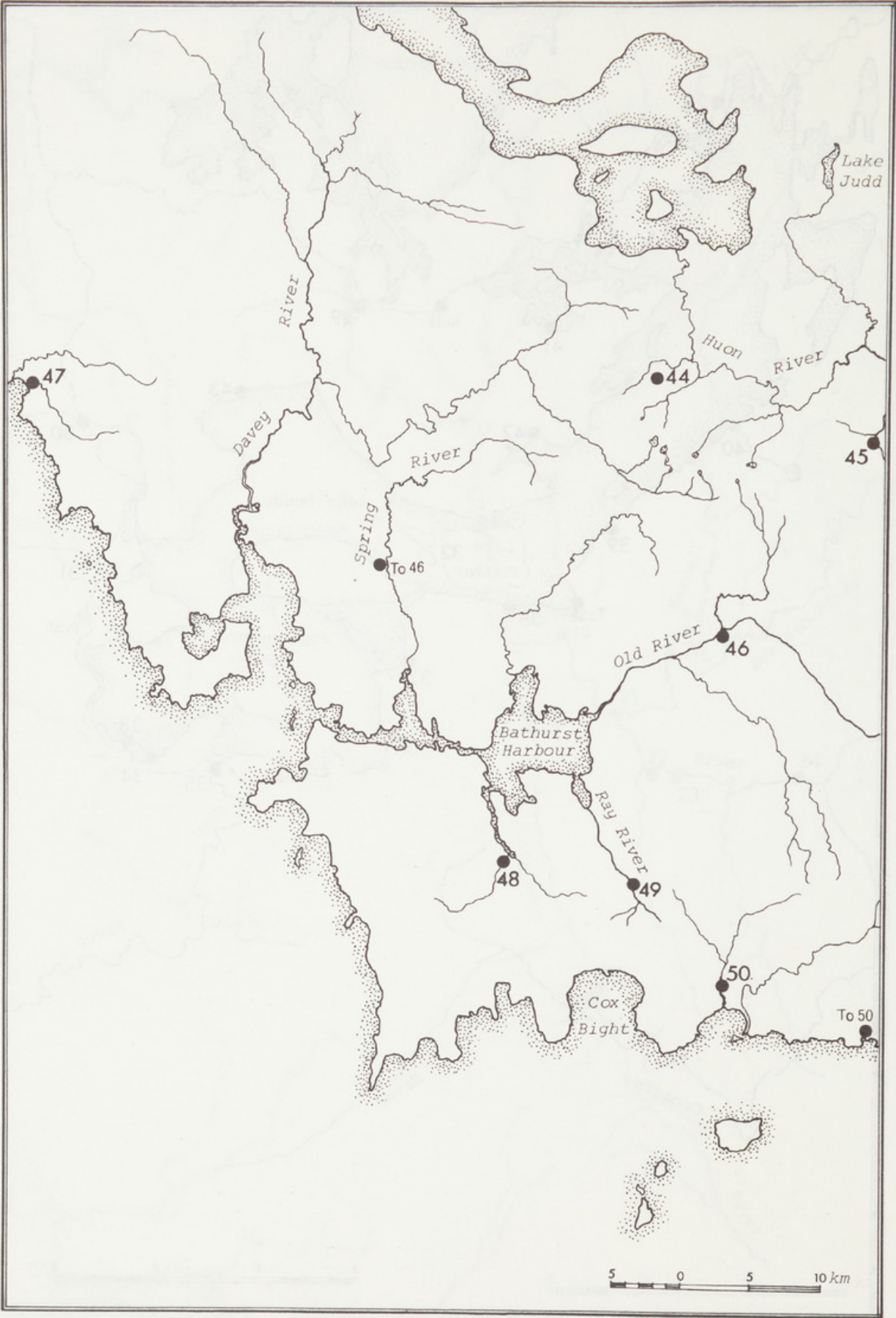
Map. 4. Investigation Area 3; Collecting sites 9-14



Map. 5. Investigation Area 4; Collecting sites 15-27



Map. 6. Investigation Area 5; Collecting sites 28-43



Map. 7. Investigation Area 6; Collecting sites 44-50



Map. 8. Investigation Area 6;
Collecting sites 51-54

Investigation Area 7;
Collecting sites 55-61

TRICHOPTERA SPECIES DISTRIBUTION IN TASMANIAN WHA. TABLE 1.

SPECIES	INVESTIGATION AREAS						
	1	2	3	4	5	6	7
<u>Trichoptera</u>							
<u>Hydrobiosidae</u>							
<i>Apsilochorema obliquum</i>	x	x	x	x	x	x	x
<i>Apsilochorema gisbum</i>	x	x		x	x		x
<i>Allochorema tasmanicum</i>	x		x			x	x
<i>Austrochorema pegidion</i>			x		x		x
<i>Austrochorema evansi</i>							
<i>Austrochorema crinitum</i>						x	
<i>Austrochorema lepnevae</i>	x			x			
<i>Austrochorema complexa</i>	x			x	x		
<i>Austrochorema sp.</i>				x		x	
<i>Ipsebiosis spicula</i>	x	x			x	x	
<i>Ulmerochorema breve</i>	x		x		x	x	x
<i>Ulmerochorema seona</i>		x		x		x	x
<i>Ulmerochorema lentum</i>							
<i>Ulmerochorema onychion</i>							
<i>Ulmerochorema tasmanicum</i>		x		x		x	x
<i>Ulmerochorema rubiconum</i>	x	x		x	x	x	x
<i>Ulmerochorema sp.</i>				x			
<i>Ethochorema secutum</i>				x	x		
<i>Ethochorema nesydrion</i>	x	x	x	x	x	x	x
<i>Ethochorema kelion</i>			x	x	x	x	x
<i>Ethochorema sp.</i>			x	x	x		
<i>Taschorema asmanum</i>	x	x		x	x	x	
<i>Taschorema apobamum</i>	x	x		x	x	x	x
<i>Taschorema ferulum</i>							x
<i>Taschorema viridarium</i>	x			x	x	x	x
<i>Taschorema pendunculatum</i>	x			x	x	x	
<i>Taschorema evansi</i>		x		x	x	x	
<i>Taschorema sp.</i>						x	
<i>Ptychobiosis nigrita</i>	x	x	x		x	x	x
<i>Koetonga clivicola</i>	x			x	x	x	x
<i>Moruya charadra</i>	x	x		x	x	x	x
<i>Moruya opora</i>	x	x				x	x
<i>Moruya tasmanica</i>	x		x				
<u>Glossosomatidae</u>							
<i>Agapetus tasmanicus</i>	x			x	x	x	x
<i>Agapetus cralus</i>	x			x	x		x
<i>Agapetus laparus</i>				x	x	x	
<u>Hydroptilidae</u>							
<i>Orphnino-trichia acta</i>					x		
<i>Orphnino-trichia maculata</i>					x		
<i>Hydroptila acinacis</i>							
<i>Hydroptila tasmanica</i>				x			
<i>Hydroptila scamandra</i>							
<i>Orthotrichia adornata</i>							
<i>Orthotrichia zonata</i>				x			x
<i>Hellyethira exserta</i>				x			x
<i>Hellyethira simplex</i>				x	x	x	
<i>Hellyethira multilobata</i>				x	x		
<i>Hellyethira basilobata</i>							
<i>Hellyethira malleoforma</i>							
<i>Oxyethira mienica</i>							
<i>Oxyethira columba</i>	x			x	x	x	x
<i>Maydenoptila explicata</i>				x			
<i>Maydenoptila cuneola</i>				x	x	x	
<i>Maydenoptila rupina</i>							

TRICHOPTERA SPECIES DISTRIBUTION IN TASMANIAN WHA. TABLE 1.

SPECIES	INVESTIGATION AREAS						
	1	2	3	4	5	6	7
<u>Philopotamidae</u>							
Hydrobiosella corinna				x			
Hydrobiosella orba				x	x		
Hydrobiosella cerula				x	x		
Hydrobiosella anasina			x	x			
Hydrobiosella tasmanica				x	x	x	x
Hydrobiosella armata							
Hydrobiosella cognata	x	x					
Hydrobiosella sagitta							
Hydrobiosella waddama	x	x		x		x	x
Hydrobiosella sp.			x	x		x	
<u>Stenopsychidae</u>							
Stenopsychodes lineata							
<u>Hydropsychidae</u>							
Cheumatopsyche modica		x	x				
Smicrophylax creektona		x		x		x	x
Smicrophylax simplex	x						
Asmicridea edwardsi		x	x	x	x	x	x
Asmicridea grisea							
Diplectrona castanea							
Diplectrona lyella							
Diplectrona bispinosa							
Diplectrona tasmanica	x		x	x			
<u>Polycentropodidae</u>							
Plectrocnemia altera	x	x	x	x	x	x	x
Plectrocnemia lacuna							
Plectrocnemia manicata	x	x		x		x	x
Plectrocnemia caudata				x	x	x	x
Plectrocnemia sp.				x		x	
Tasmanoplegas spilota	x			x	x	x	
Tasmanoplegas sp.						x	
Nyctiophylax repandus				x			x
<u>Ecnomidae</u>							
Ecnomus tillyardi	x	x		x	x	x	x
Ecnomus russellius		x			x		
Ecnomus continentalis							
Ecnomus sp.				x			
Ecnomina irrorata	x	x		x	x	x	x
Ecnomina legula				x	x	x	x
Ecnomina vega							
Ecnomina batyle		x					
Ecnomina sp.				x	x	x	
<u>Limnephilidae</u>							
Archaeophylax ochreus	x	x	x			x	x
Archaeophylax vernalis					x	x	
<u>Plectrotarsidae</u>							
Plectrotarsus gravenhorsti							
Plectrotarsus tasmanicus		x	x	x	x	x	
Liapota lavara	x		x		x	x	
Nanoplectrus truchanasi						x	

TRICHOPTERA SPECIES DISTRIBUTION IN TASMANIAN WHA. TABLE 1.

SPECIES	INVESTIGATION AREAS						
	1	2	3	4	5	6	7
<u>Oeconesidae</u>							
<i>Tascuna ignota</i>	x			x	x	x	
<u>Tasimiidae</u>							
<i>Tasimia palpata</i>							
<i>Tasimia denticulata</i>							
<i>Tasimia drepana</i>							x
<i>Tasiagma ciliata</i>							
<u>Conoesucidae</u>							
<i>Hampa patona</i>		x		x			x
<i>Matasia satana</i>					x		x
<i>Costora iena</i>							
<i>Costora delora</i>				x			
<i>Costora ebenina</i>	x						
<i>Costora ramosa</i>	x			x			
<i>Costora krene</i>					x	x	
<i>Costora seposita</i>		x	x				
<i>Costora luxata</i>	x					x	
<i>Costora rotosca</i>		x	x	x	x	x	x
<i>Costora sp.</i>		x			x	x	
<i>Lingora aurata</i>	x	x		x			
<i>Lingora vesca</i>							
<i>Conoesucus fromus</i>	x						
<i>Conoesucus norelus</i>	x	x		x		x	x
<i>Conoesucus digitiferus</i>	x	x	x	x	x	x	
<i>Conoesucus nepotulus</i>	x	x	x	x	x	x	
<i>Conoesucus brontensis</i>		x					
<i>Conoesucus sp.</i>				x	x		
<u>Helicopsychidae</u>							
<i>Helicopsyche bartona</i>	x						
<i>Helicopsyche murrumba</i>				x			x
<u>Calocidae</u>							
<i>Caloca tertia</i>						x	
<i>Caloca saneva</i>	x					x	
<i>Caloca ascita</i>		x					
<i>Caloca sp.</i>					x		
<i>Caenota plicata</i>		x	x	x	x	x	x
<i>Tamasia variegata</i>	x			x		x	
<u>Helicophidae</u>							
<i>Helicopha astia</i>							
<i>Helicopha delamarei</i>	x						
<i>Helicopha sp.</i>				x			
<i>Alloecella grisea</i>	x			x	x	x	x
<i>Alloecella longispina</i>	x	x	x	x	x	x	x
<i>Alloecella pilosa</i>	x	x		x	x	x	
<u>Kokiriidae</u>							
<i>Taskiria austera</i>				x	x	x	
<i>Taskiria mccubbini</i>					x		
<i>Taskiropsyche lacustris</i>					x		

TRICHOPTERA SPECIES DISTRIBUTION IN TASMANIAN WHA. TABLE 1.

SPECIES	INVESTIGATION AREAS						
	1	2	3	4	5	6	7
<u>Philorheithridae</u>							
<i>Austrheithrus ronewa</i>				x			x
<i>Austrheithrus glymma</i>				x			
<i>Austrheithrus</i> sp.				x			
<i>Kosrheithrus remulus</i>				x			
<i>Kosrheithrus</i> sp.				x			
<i>Ramiheithrus kocinus</i>							
<i>Aphilorheithrus stepheni</i>	x	x		x	x	x	x
<i>Aphilorheithrus pauxillus</i>				x			
<i>Aphilorheithrus decoratus</i>	x		x	x	x	x	
<i>Aphilorheithrus luteolus</i>						x	
<i>Aphilorheithrus</i> sp.					x	x	
<i>Tasmanthrus angustipennis</i>	x	x		x		x	x
<i>Tasmanthrus</i> sp.			x				
<u>Atriplectididae</u>							
<i>Atriplectides dubius</i>	x	x	x	x	x	x	x
<u>Calamoceratidae</u>							
<i>Anisocentropus latifascia</i>							
<u>Leptoceridae</u>							
<i>Westriplectes pedderensis</i>					x		
<i>Triplectides ciuskus</i>				x		x	
<i>Triplectides magnus</i>				x	x		
<i>Triplectides similis</i>				x	x		x
<i>Triplectides truncatus</i>				x	x		
<i>Triplectides bilobus</i>	x	x	x	x	x	x	x
<i>Triplectides proximus</i>							
<i>Triplectides elongatus</i>	x			x			
<i>Triplectides</i> sp.				x		x	
<i>Notoperata sparsa</i>	x		x		x	x	x
<i>Notoperata maculata</i>	x	x		x	x	x	x
<i>Symphitoneuria opposita</i>				x			
<i>Triplectidina nigricornis</i>	x	x		x	x		x
<i>Lectrides varians</i>			x	x	x	x	x
<i>Notalina parkeri</i>	x	x			x		
<i>Notalina fulva</i>		x	x	x	x	x	x
<i>Notalina tillyardi</i>							
<i>Notalina bifaria</i>	x	x		x	x	x	
<i>Notalina nigra</i>		x					
<i>Notalina</i> sp.				x	x	x	
<i>Condocerus paludosus</i>				x	x	x	x
<i>Leptorussa darlingtoni</i>				x	x		
<i>Triaenodes intricata</i>		x		x	x		x
<i>Oecetis pechana</i>					x		
<i>Oecetis umbra</i>	x			x			
<i>Oecetis gilva</i>							
<i>Oecetis australis</i>					x	x	
<i>Oecetis minasata</i>	x		x			x	x
<i>Oecetis laustra</i>				x	x	x	
<i>Oecetis asmanista</i>		x		x			x
<i>Oecetis arcada</i>	x		x	x	x	x	x
<i>Oecetis inscripta</i>		x					
<i>Oecetis scirpicula</i>					x		
<i>Oecetis</i> sp.				x	x	x	

TRICHOPTERA SPECIES DISTRIBUTION IN TASMANIAN WHA. TABLE 2.

SPECIES	SITES FOR INVESTIGATION AREAS 1 & 2.							
	AREA 1	AREA 2						
	1	2	3	4	5	6	7	8
Trichoptera								
<u>Hydrobiosidae</u>								
Apsilochorema obliquum	x					x	x	x
Apsilochorema gisbum	x	x	x					x
Allochorema tasmanicum	x							
Austrochorema pegidion								
Austrochorema evansi								
Austrochorema crinitum								
Austrochorema lepnevae	x							
Austrochorema complexa	x							
Ipsebiosis spicula	x	x						
Ulmerochorema breve	x							
Ulmerochorema seona		x						
Ulmerochorema lentum								
Ulmerochorema onychion								
Ulmerochorema tasmanicum		x						
Ulmerochorema rubiconum	x	x						x
Ethochorema secutum								
Ethochorema nesydrion	x					x	x	x
Ethochorema kelion								
Taschorema asmanum	x	x					x	
Taschorema apobamum	x	x					x	x
Taschorema ferulum								
Taschorema viridarium	x							
Taschorema pendunculatum	x							
Taschorema evansi		x	x					x
Ptychobiosis nigrita	x	x					x	
Koetonga clivicola	x							
Moruya charadra	x		x					x
Moruya opora	x	x					x	x
Moruya tasmanica	x							
<u>Glossosomatidae</u>								
Agapetus tasmanicus	x							
Agapetus cralus	x							
Agapetus laparus								
<u>Hydroptilidae</u>								
Orphnino-trichia acta								
Orphnino-trichia maculata								
Hydroptila acinacis								
Hydroptila tasmanica								
Hydroptila scamandra								
Orthotrichia adornata								
Orthotrichia zonata								
Hellyethira exserta								
Hellyethira simplex								
Hellyethira multilobata								
Hellyethira basilobata								
Hellyethira malleoforma								
Oxyethira mienica								
Oxyethira columba	x							
Maydenoptila explicata								
Maydenoptila cuneola								
Maydenoptila rupina								

TRICHOPTERA SPECIES DISTRIBUTION IN TASMANIAN WHA. TABLE 2.

SPECIES	SITES FOR INVESTIGATION AREAS 1 & 2.							
	AREA 1		AREA 2					
	1	2	3	4	5	6	7	8
<u>Philopotamidae</u>								
Hydrobiosella corinna								
Hydrobiosella orba								
Hydrobiosella cerula								
Hydrobiosella anasina								
Hydrobiosella tasmanica								
Hydrobiosella armata								
Hydrobiosella cognata	x		x			x		x
Hydrobiosella sagitta								
Hydrobiosella waddama	x						x	
<u>Stenopsychidae</u>								
Stenopsychodes lineata								
<u>Hydropsychidae</u>								
Cheumatopsyche modica		x						
Smicrophylax creektona								x
Smicrophylax simplex	x							
Asmicridea edwardsi		x	x				x	
Asmicridea grisea								
Diplectrona castanea								
Diplectrona lyella								
Diplectrona bispinosa								
Diplectrona tasmanica	x							
<u>Polycentropodidae</u>								
Plectrocnemia altera	x	x						
Plectrocnemia lacuna								
Plectrocnemia manicata	x	x					x	
Plectrocnemia caudata								
Tasmanoplegas spilota	x							
Nyctiophylax repandus								
<u>Ecnomidae</u>								
Ecnomus tillyardi	x	x					x	
Ecnomus russellius				x				
Ecnomus continentalis								
Ecnomina irrorata	x	x	x				x	
Ecnomina legula								
Ecnomina vega								
Ecnomina batyle		x						
<u>Limnephilidae</u>								
Archaeophylax ochreus	x		x				x	
Archaeophylax vernalis								
<u>Plectrotarsidae</u>								
Plectrotarsus gravenhorsti								
Plectrotarsus tasmanicus		x	x					
Liapota lavara	x							
Nanoplectrus truchanasi								

TRICHOPTERA SPECIES DISTRIBUTION IN TASMANIAN WHA. TABLE 2.

SPECIES	SITES FOR INVESTIGATION AREAS 1 & 2.							
	AREA 1				AREA 2			
	1	2	3	4	5	6	7	8
<u>Oeconesidae</u>								
Tascuna ignota	x							
<u>Tasimiidae</u>								
Tasimia palpata								
Tasimia denticulata								
Tasimia drepana								
Tasiagma ciliata								
<u>Conoesucidae</u>								
Hampa patona							x	
Matasia satana								
Costora iena								
Costora delora								
Costora ebenina	x							
Costora ramosa	x							
Costora krene								
Costora seposita					x			
Costora luxata	x							
Costora rotosca		x			x			
Costora sp.				x				
Lingora aurata	x	x		x	x			
Lingora vesca								
Conoesucus fromus	x							
Conoesucus norelus	x	x		x			x	x
Conoesucus digitiferus	x			x	x			
Conoesucus nepotulus	x			x		x		x
Conoesucus brontensis					x			x
<u>Helicopsychidae</u>								
Helicopsyche bartona	x							
Helicopsyche murrumba								
<u>Calocidae</u>								
Caloca tertia								
Caloca saneva	x							
Caloca ascita			x					
Caenota plicata							x	
Tamasia variegata	x							
<u>Helicophidae</u>								
Helicopha astia								
Helicopha delamarei	x							
Alloecella grisea	x							
Alloecella longispina	x	x			x		x	
Alloecella pilosa	x			x	x			x
<u>Kokiriidae</u>								
Taskiria austera								
Taskiria mccubbini								
Taskiropsyche lacustris								

TRICHOPTERA SPECIES DISTRIBUTION IN TASMANIAN WHA. TABLE 2.

SPECIES	SITES FOR INVESTIGATION AREAS 1 & 2.							
	AREA 1		AREA 2					
	1	2	3	4	5	6	7	8
<u>Philorheithridae</u>								
<i>Austrheithrus ronewa</i>								
<i>Austrheithrus glymma</i>								
<i>Kosrheithrus remulus</i>								
<i>Ramiheithrus kocinus</i>								
<i>Aphilorheithrus stepheni</i>	x	x	x					
<i>Aphilorheithrus pauxillus</i>	x							
<i>Aphilorheithrus decoratus</i>	x							
<i>Aphilorheithrus luteolus</i>								
<i>Tasmanthrus angustipennis</i>	x		x				x	x
<u>Atriplectididae</u>								
<i>Atriplectides dubius</i>	x	x		x			x	
<u>Calamoceratidae</u>								
<i>Anisocentropus latifascia</i>								
<u>Leptoceridae</u>								
<i>Westriplectes pedderensis</i>								
<i>Triplectides ciuskus</i>								
<i>Triplectides magnus</i>								
<i>Triplectides similis</i>								
<i>Triplectides truncatus</i>								
<i>Triplectides bilobus</i>	x	x					x	
<i>Triplectides proximus</i>								
<i>Triplectides elongatus</i>	x							
<i>Notoperata sparsa</i>	x							
<i>Notoperata maculata</i>	x	x						
<i>Symphitoneuria opposita</i>								
<i>Triplectidina nigricornis</i>	x	x					x	
<i>Lectrides varians</i>								
<i>Notalina parkeri</i>	x		x					
<i>Notalina fulva</i>		x						
<i>Notalina tillyardi</i>								
<i>Notalina bifaria</i>	x	x					x	
<i>Notalina nigra</i>			x	x	x			
<i>Condocerus paludosus</i>								
<i>Leptorussa darlingtoni</i>								
<i>Triaenodes intricata</i>		x						
<i>Oecetis pechana</i>								
<i>Oecetis umbra</i>	x							
<i>Oecetis gilva</i>								
<i>Oecetis australis</i>								
<i>Oecetis minasata</i>	x							
<i>Oecetis laustra</i>								
<i>Oecetis asmanista</i>		x						
<i>Oecetis arcada</i>	x							
<i>Oecetis inscripta</i>		x						
<i>Oecetis scirpicula</i>								

TRICHOPTERA SPECIES DISTRIBUTION IN TASMANIAN WHA. TABLE 3.

SPECIES	SITES FOR INVESTIGATION AREA 3.					
	9	10	11	12	13	14
Trichoptera						
Hydrobiosidae						
Apsilochorema obliquum	x					
Apsilochorema gisbum						
Allochorema tasmanicum	x					
Austrochorema pegidion	x				x	
Austrochorema evansi						
Austrochorema crinitum						
Austrochorema lepnevae						
Austrochorema complexa						
Ipsebiosis spicula						
Ulmerochorema breve	x					
Ulmerochorema seona						
Ulmerochorema lentum						
Ulmerochorema onychion						
Ulmerochorema tasmanicum						
Ulmerochorema rubiconum						
Ethochorema secutum						
Ethochorema nesydrion	x					
Ethochorema kelion	x				x	
Ethochorema sp.	x					
Taschorema asmanum						
Taschorema apobamum						
Taschorema ferulum						
Taschorema viridarium						
Taschorema pendunculatum						
Taschorema evansi						
Ptychobiosis nigrita	x					
Koetonga clivicola						
Moruya charadra						
Moruya opora						
Moruya tasmanica	x					
Glossosomatidae						
Agapetus tasmanicus						
Agapetus cralus						
Agapetus laparus						
Hydroptilidae						
Orphnino-trichia acta						
Orphnino-trichia maculata						
Hydroptila acinacis						
Hydroptila tasmanica						
Hydroptila scamandra						
Orthotrichia adornata						
Orthotrichia zonata						
Hellyethira exserta						
Hellyethira simplex						
Hellyethira multilobata						
Hellyethira basilobata						
Hellyethira malleoforma						
Oxyethira mienica						
Oxyethira columba						
Maydenoptila explicata						
Maydenoptila cuneola						
Maydenoptila rupina						

TRICHOPTERA SPECIES DISTRIBUTION IN TASMANIAN WHA. TABLE 3.

SPECIES	SITES FOR INVESTIGATION AREA 3.					
	9	10	11	12	13	14
<u>Philopotamidae</u>						
Hydrobiosella corinna						
Hydrobiosella orba						
Hydrobiosella cerula						
Hydrobiosella anasina	x					
Hydrobiosella tasmanica						
Hydrobiosella armata						
Hydrobiosella cognata						
Hydrobiosella sagitta						
Hydrobiosella waddama						
Hydrobiosella sp.	x					
<u>Stenopsychidae</u>						
Stenopsychodes lineata						
<u>Hydropsychidae</u>						
Cheumatopsyche modica	x					
Smicrophylax creektona						
Smicrophylax simplex						
Asmicridea edwardsi				x		x
Asmicridea grisea						
Diplectrona castanea						
Diplectrona lyella						
Diplectrona bispinosa						
Diplectrona tasmanica	x					x
<u>Polycentropodidae</u>						
Plectrocnemia altera				x		
Plectrocnemia lacuna						
Plectrocnemia manicata						
Plectrocnemia caudata						
Tasmanoplegas spilota						
Nyctiophylax repandus						
<u>Ecnomidae</u>						
Ecnomus tillyardi						
Ecnomus russellius						
Ecnomus continentalis						
Ecnomina irrorata						
Ecnomina legula						
Ecnomina vega						
Ecnomina batyle						
<u>Limnephilidae</u>						
Archaeophylax ochreus	x					
Archaeophylax vernalis						
<u>Plectrotarsidae</u>						
Plectrotarsus gravenhorsti						
Plectrotarsus tasmanicus	x	x		x		
Liapota lavara			x	x	x	
Nanoplectrus truchanasi						

TRICHOPTERA SPECIES DISTRIBUTION IN TASMANIAN WHA. TABLE 3.						
SPECIES	SITES FOR INVESTIGATION AREA 3.					
	9	10	11	12	13	14
<u>Oeconesidae</u>						
Tascuna ignota						
<u>Tasimiidae</u>						
Tasimia palpata			x			
Tasimia denticulata						
Tasimia drepana						
Tasiagma ciliata						
<u>Conoesucidae</u>						
Hampa patona			x			
Matasia satana						
Costora iena						
Costora delora						
Costora ebenina						
Costora ramosa						
Costora krene			x			
Costora seposita						x
Costora luxata						
Costora rotosca						x
Lingora aurata						
Lingora vesca						
Conoesucus fromus						
Conoesucus norelus						
Conoesucus digitiferus			x			x
Conoesucus nepotulus						x
Conoesucus brontensis						
<u>Helicopsychidae</u>						
Helicopsyche bartona						
Helicopsyche murrumba						
<u>Calocidae</u>						
Caloca tertia						
Caloca saneva						
Caloca ascita						
Caenota plicata	x					
Tamasia variegata						
<u>Helicophidae</u>						
Helicopha astia						
Helicopha delamarei						
Alloecella grisea						
Alloecella longispina	x					x
Alloecella pilosa						
<u>Kokiriidae</u>						
Taskiria austera						
Taskiria mccubbini						
Taskiropsyche lacustris						

TRICHOPTERA SPECIES DISTRIBUTION IN TASMANIAN WHA. TABLE 3.

SPECIES	SITES FOR INVESTIGATION AREA 3.					
	9	10	11	12	13	14
<u>Philorheithridae</u>						
Austrheithrus ronewa						
Austrheithrus glymma						
Kosrheithrus remulus						
Ramiheithrus kocinus						
Aphilorheithrus stepheni						
Aphilorheithrus pauxillus						
Aphilorheithrus decoratus	x				x	
Aphilorheithrus luteolus						
Tasmanthrus angustipennis						
Tasmanthrus sp.			x			
<u>Atriplectididae</u>						
Atriplectides dubius	x					x
<u>Calamoceratidae</u>						
Anisocentropus latifascia						
<u>Leptoceridae</u>						
Westriplectes pedderensis						
Triplectides ciuskus						
Triplectides magnus						
Triplectides similis						
Triplectides truncatus						
Triplectides bilobus	x					x
Triplectides proximus						
Triplectides elongatus						
Notoperata sparsa	x					x
Notoperata maculata						
Symphitoneuria opposita						
Triplectidina nigricornis						
Lectrides varians	x					
Notalina parkeri						
Notalina fulva						x
Notalina tillyardi						
Notalina bifaria						
Notalina nigra						
Condocerus paludosus						
Leptorussa darlingtoni						
Triaenodes intricata						
Oecetis pechana						
Oecetis umbra						
Oecetis gilva						
Oecetis australis						
Oecetis minasata	x					
Oecetis laustra						
Oecetis asmanista						
Oecetis arcada	x					
Oecetis inscripta						
Oecetis scirpicula						

[illegible]

TRICHOPTERA SPECIES DISTRIBUTION IN TASMANIAN WHA. TABLE 4.

SPECIES	SITES FOR INVESTIGATION AREA 4.													
	1 5	1 6	1 7	1 8	1 9	2 0	2 1	2 2	2 3	2 4	2 5	2 6	2 7	
<u>Philorheithridae</u>														
Austrheithrus ronewa								x						
Austrheithrus glymma			x					x	x					
Austrheithrus sp.		x	x		x	x					x			
Kosrheithrus remulus				x	x									
Kosrheithrus sp.								x	x					
Ramiheithrus kocinus														
Aphilorheithrus stepheni						x		x				x	x	
Aphilorheithrus pauxillus						x					x	x	x	
Aphilorheithrus decoratus		x							x					
Aphilorheithrus luteolus														
Tasmanthrus angustipennis			x	x	x	x	x	x	x	x	x	x	x	
<u>Atriplectididae</u>														
Atriplectides dubius		x	x	x									x	
<u>Calamoceratidae</u>														
Anisocentropus latifascia														
<u>Leptoceridae</u>														
Westriplectes pedderensis														
Triplectides ciuskus		x	x	x		x					x			
Triplectides magnus											x			
Triplectides similis										x			x	
Triplectides truncatus					x							x		
Triplectides bilobus		x	x			x		x	x	x			x	
Triplectides proximus														
Triplectides elongatus												x		
Triplectides sp.											x		x	
Notoperata sparsa														
Notoperata maculata										x			x	
Symphitoneuria opposita	x													
Triplectidina nigricornis											x	x	x	
Lectrides varians		x											x	
Notalina parkeri														
Notalina fulva		x	x		x	x		x	x	x			x	
Notalina tillyardi														
Notalina bifaria			x			x				x	x		x	
Notalina nigra														
Notalina sp.	x		x	x			x		x					
Condocerus paludosus												x	x	
Leptorussa darlingtoni			x											
Triaenodes intricata								x				x		
Oecetis pechana														
Oecetis umbra												x		
Oecetis gilva														
Oecetis australis														
Oecetis minasata														
Oecetis laustra												x	x	
Oecetis asmanista			x									x		
Oecetis arcada		x	x			x		x	x			x	x	
Oecetis inscripta														
Oecetis scirpicula														
Oecetis sp.								x					x	

TRICHOPTERA SPECIES DISTRIBUTION IN TASMANIAN WHA. TABLE 5.

SPECIES	SITES FOR INVESTIGATION AREA 5.															
	2 8	2 9	3 0	3 1	3 2	3 3	3 4	3 5	3 6	3 7	3 8	3 9	4 0	4 1	4 2	4 3
Trichoptera																
<u>Hydrobiosidae</u>																
Apsilochorema obliquum		x	x	x												
Apsilochorema gisbum			x	x		x		x			x					
Allochorema tasmanicum																
Austrochorema pegidion				x												
Austrochorema evansi																
Austrochorema crinitum																
Austrochorema lepnevae																
Austrochorema complexa					x											
Ipsebiosis spicula				x	x											
Ulmerochorema breve		x														
Ulmerochorema seona																
Ulmerochorema lentum																
Ulmerochorema onychion																
Ulmerochorema tasmanicum																
Ulmerochorema rubiconum		x	x	x												
Ethochorema secutum											x					
Ethochorema nesydrion		x		x												
Ethochorema kelion				x												
Ethochorema sp.	x															
Taschorema asmanum		x	x	x												
Taschorema apobamum			x													
Taschorema ferulum																
Taschorema viridarium			x													
Taschorema pendunculatum				x					x	x	x		x			
Taschorema evansi			x	x	x	x		x			x					
Ptychobiosis nigrita		x	x	x							x					
Koetonga clivicola			x													
Moruya charadra		x		x												
Moruya opora																
Moruya tasmanica																
<u>Glossosomatidae</u>																
Agapetus tasmanicus		x	x													
Agapetus cralus		x														
Agapetus laparus				x												
<u>Hydroptilidae</u>																
Orphninostrichia acta											x					
Orphninostrichia maculata		x														
Hydroptila acinacis																
Hydroptila tasmanica																
Hydroptila scamandra																
Orthotrichia adornata																
Orthotrichia zonata																
Hellyethira exserta																
Hellyethira simplex		x	x													
Hellyethira multilobata											x					
Hellyethira basilobata																
Hellyethira malleoforma																
Oxyethira mienica																
Oxyethira columba			x													
Maydenoptila explicata																
Maydenoptila cuneola		x														
Maydenoptila rupina																

TRICHOPTERA SPECIES DISTRIBUTION IN TASMANIAN WHA. TABLE 5.

[illegible]

TRICHOPTERA SPECIES DISTRIBUTION IN TASMANIAN WHA. TABLE 6.

[illegible]

TRICHOPTERA SPECIES DISTRIBUTION IN TASMANIAN WHA. TABLE 6.

[illegible]

TRICHOPTERA SPECIES DISTRIBUTION IN TASMANIAN WHA. TABLE 6.

SPECIES	SITES FOR INVESTIGATION AREA 6.											
	4	4	4	4	4	4	5	5	5	5	5	
	4	5	6	7	8	9	0	1	2	3	4	
<u>Philorheithridae</u>												
Austrheithrus ronewa												
Austrheithrus glymma												
Kosrheithrus remulus												
Ramiheithrus kocinus												
Aphilorheithrus stepheni	x										x	
Aphilorheithrus pauxillus												
Aphilorheithrus decoratus			x	x	x						x	
Aphilorheithrus luteolus		x										
Aphilorheithrus sp.								x				
Tasmanthrus angustipennis	x	x	x				x				x	
<u>Atriplectididae</u>												
Atriplectides dubius	x	x	x	x				x				
<u>Calamoceratidae</u>												
Anisocentropus latifascia												
<u>Leptoceridae</u>												
Westriplectes pedderensis												
Triplectides ciuskus	x			x								
Triplectides magnus												
Triplectides similis												
Triplectides truncatus												
Triplectides bilobus	x		x	x		x	x	x			x	
Triplectides proximus												
Triplectides elongatus												
Triplectides sp.					x							
Notoperata sparsa	x		x		x			x		x	x	
Notoperata maculata	x				x	x	x	x				
Symphitoneuria opposita												
Triplectidina nigricornis												
Lectrides varians				x								
Notalina parkeri												
Notalina fulva			x			x		x				
Notalina tillyardi												
Notalina bifaria	x		x		x						x	
Notalina nigra												
Notalina sp.				x								
Condocerus paludosus	x											
Leptorussa darlingtoni												
Triaenodes intricata												
Oecetis pechana												
Oecetis umbra												
Oecetis gilva												
Oecetis australis			x	x								
Oecetis minasata											x	
Oecetis laustra			x									
Oecetis asmanista												
Oecetis arcada	x	x	x	x	x	x		x			x	
Oecetis inscripta												
Oecetis scirpicula												
Oecetis sp.								x				

TRICHOPTERA SPECIES DISTRIBUTION IN TASMANIAN WHA. TABLE 7.

SPECIES	SITES FOR INVESTIGATION AREA 7.						
	5	5	5	5	5	6	6
	5	6	7	8	9	0	1
Trichoptera							
Hydrobiosidae							
Apsilochorema obliquum		x		x	x		
Apsilochorema gisbum	x		x		x		
Allochorema tasmanicum							x
Austrochorema pegidion	x						
Austrochorema evansi							
Austrochorema crinitum							
Austrochorema lepnevae							
Austrochorema complexa							
Ipsebiosis spicula							
Ulmerochorema breve	x						
Ulmerochorema seona					x		x
Ulmerochorema lentum							
Ulmerochorema onychion							
Ulmerochorema tasmanicum	x				x		
Ulmerochorema rubiconum					x		
Ethochorema secutum							
Ethochorema nesydrion	x	x			x		
Ethochorema kelion			x				
Taschorema asmanum							
Taschorema apobamum	x		x		x		
Taschorema ferulum					x		
Taschorema viridarium					x		
Taschorema pendunculatum							
Taschorema evansi							
Ptychobiosis nigrita					x		
Koetonga clivicola		x					
Moruya charadra		x	x		x		x
Moruya opora	x				x		
Moruya tasmanica							
Glossosomatidae							
Agapetus tasmanicus	x			x	x		
Agapetus cralus							x
Agapetus laparus							
Hydroptilidae							
Orphnino-trichia acta							
Orphnino-trichia maculata							
Hydroptila acinacis							
Hydroptila tasmanica							
Hydroptila scamandra							
Orthotrichia adornata							
Orthotrichia zonata	x				x		
Hellyethira exserta					x		
Hellyethira simplex							
Hellyethira multilobata							
Hellyethira basilobata							
Hellyethira malleoforma							
Oxyethira mienica							
Oxyethira columba					x		
Maydenoptila explicata							
Maydenoptila cuneola							
Maydenoptila rupina							

TRICHOPTERA SPECIES DISTRIBUTION IN TASMANIAN WHA. TABLE 7.

SPECIES	SITES FOR INVESTIGATION AREA 7.						
	5 5	5 6	5 7	5 8	5 9	6 0	6 1
<u>Philopotamidae</u>							
Hydrobiosella corinna							
Hydrobiosella orba							
Hydrobiosella cerula							
Hydrobiosella anasina							
Hydrobiosella tasmanica		x		x			x
Hydrobiosella armata							
Hydrobiosella cognata							
Hydrobiosella sagitta							
Hydrobiosella waddama	x				x		
<u>Stenopsychidae</u>							
Stenopsychodes lineata							
<u>Hydropsychidae</u>							
Cheumatopsyche modica							
Smicrophylax creektona					x		x
Smicrophylax simplex							
Asmicridea edwardsi	x				x	x	
Asmicridea grisea							
Diplectrona castanea							
Diplectrona lyella							
Diplectrona bispinosa							
Diplectrona tasmanica							
<u>Polycentropodidae</u>							
Plectrocnemia altera					x		
Plectrocnemia lacuna							
Plectrocnemia manicata	x				x	x	
Plectrocnemia caudata					x		
Tasmanoplegas spilota							
Nyctiophylax repandus	x				x	x	
<u>Ecnomidae</u>							
Ecnomus tillyardi	x				x	x	
Ecnomus russellius							
Ecnomus continentalis							
Ecnomina irrorata	x				x	x	
Ecnomina legula						x	
Ecnomina vega							
Ecnomina batyle							
<u>Limnephilidae</u>							
Archaeophylax ochreus	x				x	x	
Archaeophylax vernalis							
<u>Plectrotarsidae</u>							
Plectrotarsus gravenhorsti							
Plectrotarsus tasmanicus							
Liapota lavara							
Nanoplectrus truchanasi							

TRICHOPTERA SPECIES DISTRIBUTION IN TASMANIAN WHA. TABLE 7.							
SPECIES	SITES FOR INVESTIGATION AREA 7.						
	5 5	5 6	5 7	5 8	5 9	6 0	6 1
<u>Oeconesidae</u>							
Tascuna ignota							
<u>Tasimiidae</u>							
Tasimia palpata							
Tasimia denticulata							
Tasimia drepana					x		
Tasiagma ciliata							
<u>Conoesucidae</u>							
Hampa patona	x				x		
Matasia satana							x
Costora iena							
Costora delora							
Costora ebenina							
Costora ramosa							
Costora krene							
Costora seposita							
Costora luxata							
Costora rotosca	x				x	x	
Lingora aurata							
Lingora vesca							
Conoesucus fromus							
Conoesucus norelus					x		
Conoesucus digitiferus							
Conoesucus nepotulus							
Conoesucus brontensis							
<u>Helicopsychidae</u>							
Helicopsyche bartona							
Helicopsyche murrumba						x	
<u>Calocidae</u>							
Caloca tertia							
Caloca saneva							
Caloca ascita							
Caenota plicata					x		
Tamasia variegata							
<u>Helicophidae</u>							
Helicopha astia							
Helicopha delamarei							
Alloeocella grisea							
Alloeocella longispina	x			x	x		x
Alloeocella pilosa							
<u>Kokiriidae</u>							
Taskiria austera							
Taskiria mccubbini							
Taskiropsyche lacustris							

TRICHOPTERA SPECIES DISTRIBUTION IN TASMANIAN WHA. TABLE 7.

SPECIES	SITES FOR INVESTIGATION AREA 7.						
	5 5	5 6	5 7	5 8	5 9	6 0	6 1
<u>Philorheithridae</u>							
Austrheithrus ronewa						x	
Austrheithrus glymma							
Kosrheithrus remulus							
Ramiheithrus kocinus							
Aphilorheithrus stepheni	x				x		
Aphilorheithrus pauxillus							
Aphilorheithrus decoratus							
Aphilorheithrus luteolus							
Tasmanthrus angustipennis	x				x	x	
<u>Atriplectididae</u>							
Atriplectides dubius	x				x	x	
<u>Calamoceratidae</u>							
Anisocentropus latifascia							
<u>Leptoceridae</u>							
Westriplectes pedderensis							
Triplectides ciuskus							
Triplectides magnus							
Triplectides similis					x		
Triplectides truncatus							
Triplectides bilobus	x				x	x	
Triplectides proximus							
Triplectides elongatus							
Notoperata sparsa					x		
Notoperata maculata					x		
Symphitoneuria opposita							
Triplectidina nigricornis	x				x		
Lectrides varians					x		
Notalina parkeri							
Notalina fulva						x	
Notalina tillyardi							
Notalina bifaria							
Notalina nigra							
Condocerus paludosus					x		
Leptorussa darlingtoni							
Triaenodes intricata					x		
Oecetis pechana							
Oecetis umbra							
Oecetis gilva							
Oecetis australis							
Oecetis minasata		x					
Oecetis laustra							
Oecetis asmanista	x				x		
Oecetis arcada		x			x	x	
Oecetis inscripta							
Oecetis scirpicula							



Neboiss, A, Jackson, D J, and Walker, K. 1989. "Caddis-flies (Insecta: Trichoptera) of the World Heritage Area in Tasmania - Species Composition and distribution." *Occasional papers from the Museum of Victoria. Vol. 1-6 (1984-1993)* 4, 1.

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