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19. Representative basin study: Meredith River, eastern Tasmania.

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The Meredith River drains an area of approximately 100 km^2 of high country on the east coast of Tasmania. A narrow flood plain, 2.5 km in length extends inland from the coast. The river mouth is situated one kilometre north of the township of Swansea. The Rivers and Water Supply Commission gauging station is located on this flood plain 2.5 km upstream from the Tasman Highway bridge, on dolerite.

ACCESS

A new logging road connecting Swanport to Lake Leake on the Campbell Town - Swansea road runs along the western margin of the Meredith catchment from Tom Legges Tier to Eaglehawk Hill. An old logging road known as McNeils Road follows along northern divide, known as White Grays ridge, to connect with the new logging road at Eaglehawk Hill. Another old logging track, Wilsons Road runs from Swansea west across the Kelvedon Hills to near the confluence of Meredith River and Shaw Rivulet. A third access track from the coast north of Thirty Acre Creek reaches the divide between Stony River and Webbs Creek, the southernmost tributary of the Meredith River. Except for the wood chip road all of these tracks are very steep in places and require four-wheel drive vehicles. None of these tracks actually reaches the Meredith River. A bulldozer would be needed to improve the tracks and to pull a drilling rig into the area.

PHYSIOGRAPHY

Almost all of the Meredith river catchment area is highly dissected plateau country of dolerite rocks. The only extensive area of valley flats is on the alluvial sands and gravels of the narrow flood plain. This flood plain merges with a narrow coastal plain and sand dune area of Nine Mile Beach.

The country rises abruptly from the coast and forms a series of high level plateaux. The coastal plateau (140-200 m above sea level) extends inland from the coast south of Swansea to the Meredith River valley and forms the Kelvedon Hills. The eastern coastal margin of this plateau does not form part of the Meredith catchment and is drained by a series of small coastal streams such as Stony River and Thirty Acre Creek. The western margin of this coastal plateau is drained by Webbs Creek. Webbs Creek joins with the easterly flowing Shaw Rivulet to form the long N-S tributary of the Meredith River. Shaw Rivulet originates from the northern and eastern slopes of Buxtons Lookout ridge which separates the Meredith drainage system from the Buxton River valley to the south.

The Meredith River originates on the easterly slopes of Tom Legges Tier about 16 km from the coast. Tom Legges Tier is a flat-topped divide at an altitude of about 650 m separating the easterly flowing drainage of the Macquarie River and its tributaries.

Tom Legges Tier runs north to Eaglehawk Hill, an extensive plateau-like hill that separates Big Sassy Creek a headwater tributary of the Meredith from the headwaters of O'Connor Rivulet a major tributary of the Wye River to the north.

Big Sassy Creek and the other major tributaries of the Meredith such as Bluegong Creek, Joes Gully Creek, Dry Creek and Shaw Rivulet are all deeply incised streams with steep-sided valleys which are often cliffed. These

streams fall to join the Meredith River by a sequence of steep slopes and benches. The interfluves separating these tributaries are flat plateau areas such as Pigeonwood Hill and Goatrock Hill or flat elongate ridges such as Gentle Annie ridge and Kioka Hill.

These high plateau-like interfluves between narrow deeply incised valleys are a feature of the youthfully dissected dolerite country of the East Coast of Tasmania. The valley sides are often cliffed and fall to the low level deeply incised streams by a series of steep slopes and benches. The stream valley floor is narrow, gorge-like and often sinuous. A series of rock outcrops, dolerite gravel beds, and isolated ponds of water form the river bed.

LAND USE

The only area of arable land within the Meredith catchment is the coastal flood plain. Most of the coastal hill slopes of Doctors Hills and Kelvedon Hills have been cleared for grazing but much of this area has reverted to regrowth scrub and forest. The remaining area, comprising most of the Meredith catchment, is covered with eucalypt forest. This forest area has been used over long periods for timber production and at present is being exploited extensively for the wood chip industry.

GEOLOGY

Only a reconnaissance geological survey was undertaken. The whole area appears to be underlain by dolerite. Outcrops of dolerite are profuse and are often in the form of cliffs. Dolerite talus or boulder scree cover large parts of the high plateau areas and of the benches on the valley sides. Soils are very thin and sometimes have an orange colour due to laterisation. Some dolerite gravel slides were observed in the headwater tributaries. The flood plain is of dolerite gravel mixed with sand and clay. Coastal sand occurs at the mouth of the Meredith River.

HYDROLOGY

Little is known about the hydrological properties of the dolerite. No areas of intense vertical joints near the top and bottom contacts of dolerite sills as seen elsewhere in Tasmania were observed within the Meredith catchment. Joints are widely spaced in the dolerite outcrops. Flat surface outcrops and benched outcrops, 1-2 m in height are very common in the area. Weathering does not appear to extend far below the rock surface.

A good exposure of a crush zone in the dolerite was found in a quarry face on the track to Stony River. In this quarry the zone of crushed and fractured dolerite was approximately 10 m in width.

Groundwater

The area was experiencing a severe drought during the period of mapping and no springs were found. The surface run-off is likely to be very high in such a rocky terrain. Groundwater would be confined to the joints in the dolerite and the crush zones are the most likely areas where it is likely to be present in quantity.

CONCLUSIONS

The water table depth and configuration for a valley cut in dolerite, such as the Meredith, is an unknown.

Siting of observation bore

The Rivers and Water Supply Commission's gauging station is situated on a dolerite outcrop in the foothills of Doctors Hills near the margin of the coastal flood plain. It lies between two low dolerite hills which have slopes covered by talus. Although this site is very accessible an observation bore at this point would not give results representative of the dissected dolerite plateau region of the East Coast of Tasmania.

A more profitable position would be about 4 km upstream from the gauging station on one of the rock benches 30-60 m above the river. Such benches can be reached by Wilsons Road. A bulldozer would be needed to pull a drilling rig into the area.

[28 September 1973]

Reports 17-19 are concerned with areas investigated at the request of the Rivers and Water Supply Commission as part of the Australian Water Resources Council's Representative Basin Program. The location of the catchment areas is shown in Figure 28.

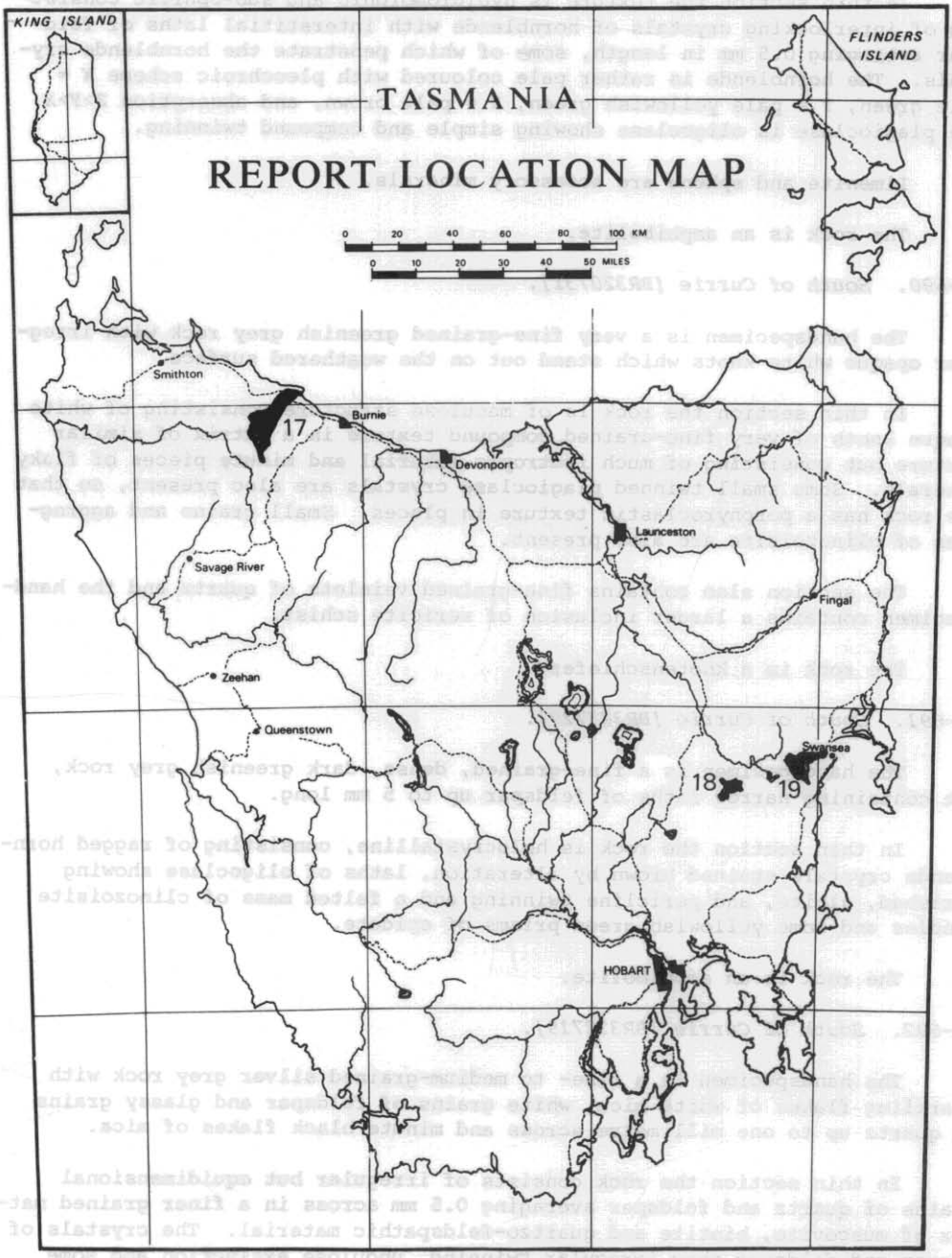

Figure 28. *Location of catchment areas: 17 Flowerdale River, 18 Birralee Creek, 19 Meredith River.*

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