

Investigation into the Feasibility of Controlling Old Man's Beard in the Mid-Turakina Catchment

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1. Introduction

Old Man's Beard, *Clematis vitalba*, (OMB) is the worst pest plant of intact native forests in the Horizons region. It is a fast climbing vine that will smother canopy trees and form a dense carpet in the understory, replacing indigenous species and suppressing regeneration. What we have left of our region's forest habitat is, and will always be, under immediate threat from this plant. The extensive infestations of OMB across our region are actively managed by Horizons via the Regional Pest Plant Management Strategy 2007 (RPPMS). Horizons has nominated areas of relatively low populations as control areas; where Horizons undertakes to control all known infestations of OMB to the last individual or zero-density. Horizons also recognises the intractable nature of entrenched infestations and the areas of lower risk habitats by including these in the containment areas; where control is not feasible due to the quantum of monies required, the large impact on desirable vegetation and wider landscape matters if control was attempted and the resignation that, as all other environmental agencies have discovered, winning against OMB is not achievable in all landscapes. Other groups and landowners within the region are also concerned about the impact of OMB on native biodiversity and our once fabulous landscapes. Many have taken proactive steps to cut, spray, and advocate for OMB control.

There is a long history of OMB management in the Horizons region. It is anecdotally home to the first wilding site of OMB in New Zealand. Imported from Europe for use in flower arranging by the then wife of the Taihape Mayor sometime in the 1930s, it did not stay a garden plant for long. It is said the Mayors residence was opposite Spooners Hill reserve, the site of many thousands of hours of hard labour by concerned residents and community groups such as the Rangitikei Environment Group. And it is this community resolve to reverse the disastrous effects of OMB on the 'Unspolit' Rangitikei district that led to the instigation of this investigation.

The proposal for an area wide eradication approach to OMB was generated from the Rangitikei community at meetings of the Turakina River Scheme during 2010. The proposal was to include a low level control programme throughout the catchment with ultimate decisions on work scope and expenditure to be made by the community and also proposed to be funded via the Turakina River Scheme rating system. Though locals generally supported a coordinated approach to wider OMB control there were concerns about past results in the valley and also future costs, especially as the funding was proposed to be targeted to the works catchment.

In early 2012 staff from the Environmental Management Group (GEM) and Operations Group (Ops) of Horizons were charged to more fully investigate what an OMB control programme would require in the mid section of the Turakina. This was to be completed as per the Turakina River Scheme Final Report, January 2012, Section 4, B (page 8). 'Before any control works [of OMB] commence under the Scheme a separately funded trial is to be undertaken to help establish if cost-effective OMB control in the Turakina Valley is viable.

2. Summary

The investigation into the feasibility of cost-effective OMB control has shown that OMB is widespread throughout much of the proposed control area, and it is not feasible to attempt long-term cost-effective control.

Though the budget allocated for the aerial survey did not allow a complete assessment of the 66,000 hectares proposed control zone (the zone), we are confident what was recorded from where we looked is indicative of the majority of the zone. And, even if the rest of the zone was clear of OMB the approximately 240 ha of OMB recorded is more than any programme could successfully control, let alone afford.

Density of vines in the immediate Turakina river trench is very high and significant infestations occur throughout this area. The number and size of OMB sites diminishes further up the valley.

Combining the results of the aerial survey and of the interviews of residents and views of stakeholders it is clear that site-led control of appropriately selected significant sites is the only option worth considering.

3. Investigation

3.1 Staff

Craig Davey, Environmental Coordinator, with GEM and Jeremy Cummings, Senior Engineering Officer, with Ops were given the brief to investigate this matter.

3.2 Approach

Originally the project was to include trial work of the various methods of control in the varied habitats of the Turakina catchment. We then intended to extrapolate from these results the cost of controlling OMB in the area and whether this would be cost-effective. It quickly became apparent when we made initial inquiries regarding proposed trial sites and methodology that past experiences had soured residents appeal of tackling OMB via aerial control techniques. It also became apparent that the level of infestation was very high. When infestation levels are this high, consideration of where any control could be undertaken would have to account for the threat of re-invasion from nearby sources preventing effective long-term control being achieved.

Given this information it was decided to undertake two operations:

1. A phone survey of a sub committee of the Turakina River Scheme Liaison Committee is conducted to discuss more fully any likely trial or control programme ramifications and also seek to better understanding of the wider opinions within the valley of what cost-effective OMB control would mean.
2. Undertake an aerial survey using an experienced local helicopter firm to provide a robust assessment of the infestation levels of OMB in the priority areas within the proposed OMB control area.

3.3 Phone survey

The phone survey was conducted by Jeremy Cummings and was undertaken in mid-February 2012. An overview is included in Appendix 2. The opinions expressed in the interviews are summarised as follows:

- The opinions expressed varied from either end of the continuum but the one clear message was that no further money or information was needed to help the respondents formulate an opinion over the need for control measures.
- Four of the five were firmly of the opinion they did not want to be rated for the full control of OMB in the catchment. Three of the five were mildly in favour of rating for the protection of 'outstanding' pieces of native bush in the mid catchment and one of five thought full control measures would be supported by the community.

The result of undertaking these interviews was to adjust the original project direction to the following course:

- There is no need to undertake trial work.
- There is a need to better understand the extent of the OMB problem in the catchment and thus the practicality of control works.
- There will be some survey and mapping work done to inform the development of a proposed control programme including costs. That survey may involve further discussions with the local OMB group.
- Information from the survey and assessment should then facilitate a reasonably well informed debate as to whether or not the river scheme should fund an OMB programme.

3.4 Aerial survey

The monies ear marked for this project totalled \$6000. It was thus decided to commit all the funding towards the aerial survey. The proposed control zone has an area of 66,000 hectares and as such a prioritised survey rationale was considered the only acceptable methodology. Rangitikei Helicopters were contracted to provide a gps tracked and way-pointed data set of the OMB infestation. The company undertook the flying and recording of OMB sites with their own staff. Rangitikei helicopters are very experienced operators and have highly skilled staff well versed in OMB control, survey techniques and GPS plotting. Horizons and the Department of Conservation (DoC) are regular users of their services so the project team were confident contracting them to collect the raw data. Rangitikei Helicopters also took images from the helicopter to visually describe the type of terrain the OMB is infesting.

The survey area was prioritised to encompass the main river corridor and its catchments as any works undertaken would be affected by infestations both upstream and up-wind as OMB seed is both wind and water dispersed. The operator also used his extensive local knowledge to avoid already known hot spots in the search area to cover off less likely spots as well.

Two flights took place in April and the data set as seen in Appendix 1 is interpreted as follows:

- Each waypoint or dot represents a site less than or equal to 0.2ha, hence the concentration of dots used to portray the thicker infestations.
- The flight path, in green, shows the extent of the survey.

The survey produced 1200 waypoints; which roughly equates to 240 ha of OMB. The topography of the area ranges from river gorges and cliffs which are very steep to vertical through to discreet patches of bush and forestry blocks and open pasture in steep hill country (Figure 1). For more images please see Appendix 3. The infestation data shows the number of sites diminishes further north/east. In the top end of the zone there are DoC reserves which have a relatively light infestation of OMB. The contractors estimation of cost was roughly \$1,000 to \$2,000 for an initial aerial treatment.

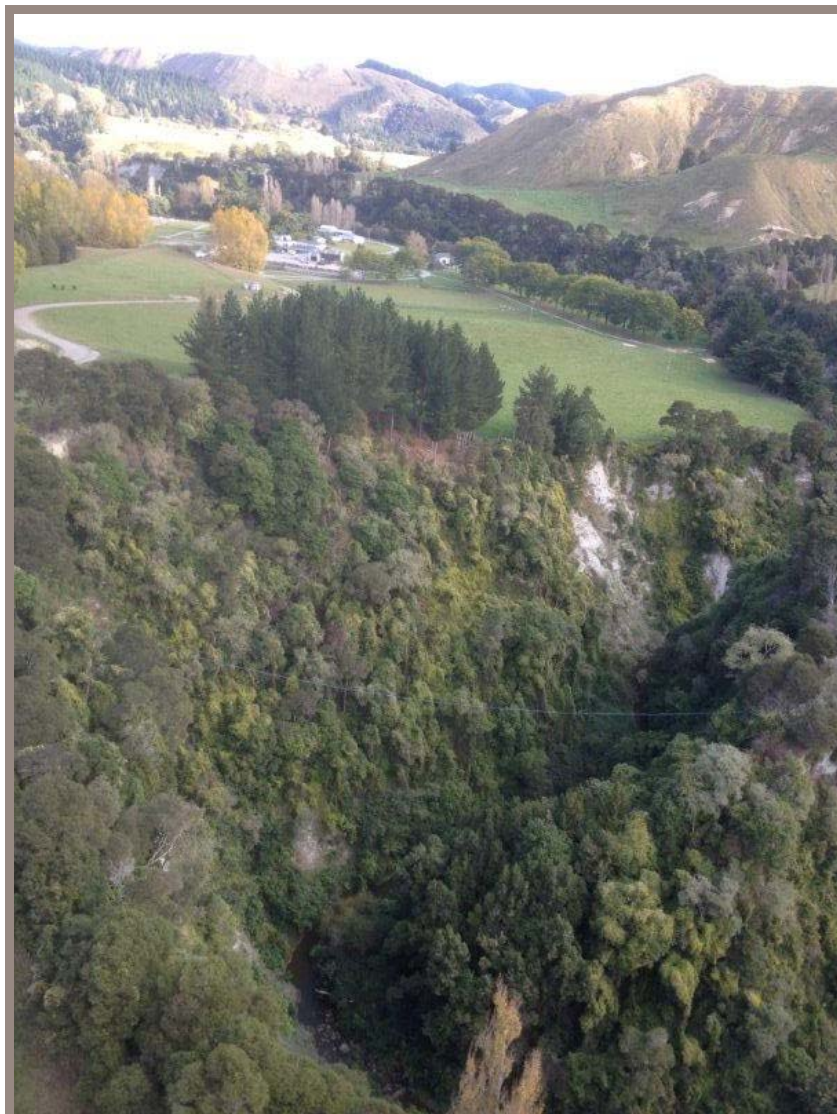


Figure 1 Typical infestation in the river corridor, OMB showing as yellow blanket. (Rangitikei Helicopters Ltd)

4. Conclusions

There is a large burden of OMB in the Turakina catchment, especially in the Turakina river corridor but also scattered across the landscape.

Old Man's Beard control operations require many different methods depending on the site; from hand control of vines and seedlings to gun and hose spraying of larger infestations to aerial spraying with bucket or boom, the larger the infestation and the less accessible the site the success is less likely. Success as defined by long-term reduction and eventual removal of all OMB plants and seeds. This point is particularly important in sites such as the Turakina. It is very easy to target OMB but also destroy desirable vegetation. This so called collateral damage may be acceptable in a few cases where further spread is prevented by the sacrifice of the vegetation the OMB is growing amongst. However when that vegetation is the stuff you are trying to save and the site is actually what you would like to protect then an evaluation of the goals for the site must be made.

In discussion with Rangitikei Helicopters after the aerial survey we assessed the extent of the infestation, the type of terrain and the other vegetation in the infestation zones. Horizons and Rangitikei Helicopters have extensive experience controlling OMB in many types of landscapes. After considering the information collected and based on our experience we came to the opinion that the costs for conducting an annual control programme targeting OMB across the zone are un-calculable.

The typical price per hectare for vegetation control does not apply to this type of landscape. Effective targeted control requires a scalpel rather than a blunt tool approach. To minimise collateral damage and achieve a moderately successful outcome the programme would need to include as much ground based operations as possible. Many tens of thousands would be needed to tackle the plant in all its sites, and many of these are inaccessible to ground operators making success virtually impossible. The associated impact from the control programme on desirable vegetation would be disastrous as there is no selective chemical capable of only killing OMB. Consideration also needed to be given to the seed longevity of OMB, which is in the order of 15+ years. Starting a programme without recognising the long-term implications of factors such as seed longevity and thus funding commitments would be short sighted.

As such, long-term control should not be attempted on a wider landscape approach.

The community opinions as expressed via the phone interview and summarised in this report align with the findings of the Horizons staff involved with this report. Controlling OMB in the proposed control zone will not be cost-effective. If the Turakina River Scheme rating system is to be used for the collection of targeted rates to control OMB in the proposed control zone then the community need to be actively involved in site selection guided by a clear set of criteria.

A site should be chosen that fulfils most of the following criteria:

1. An absence of OMB in the site. Old Mans Beard is kept at bay by wider landscape work over a distance from the site which will prevent seed rain causing establishment.
2. The presence of OMB in the site is minimal and every plant is able to be controlled by ground operations.
3. There is a commitment to long-term protection of the site by those stakeholders funding the work, undertaking the work, and receiving benefit from the work.
4. The site has some element of biodiversity worth such as a rare or threatened species or a pristine patch of representative habitat.
5. The site ranks highly for biodiversity evaluation measures following Horizons' Forest Prioritisation and Site Selection Process.
6. The site has a strong connection to the community now, or in the short term, once the worth of point 4 is interpreted.
7. The site is an example of the local landscape that has a strong connection to the identity of the area.

4.1 Recommendations

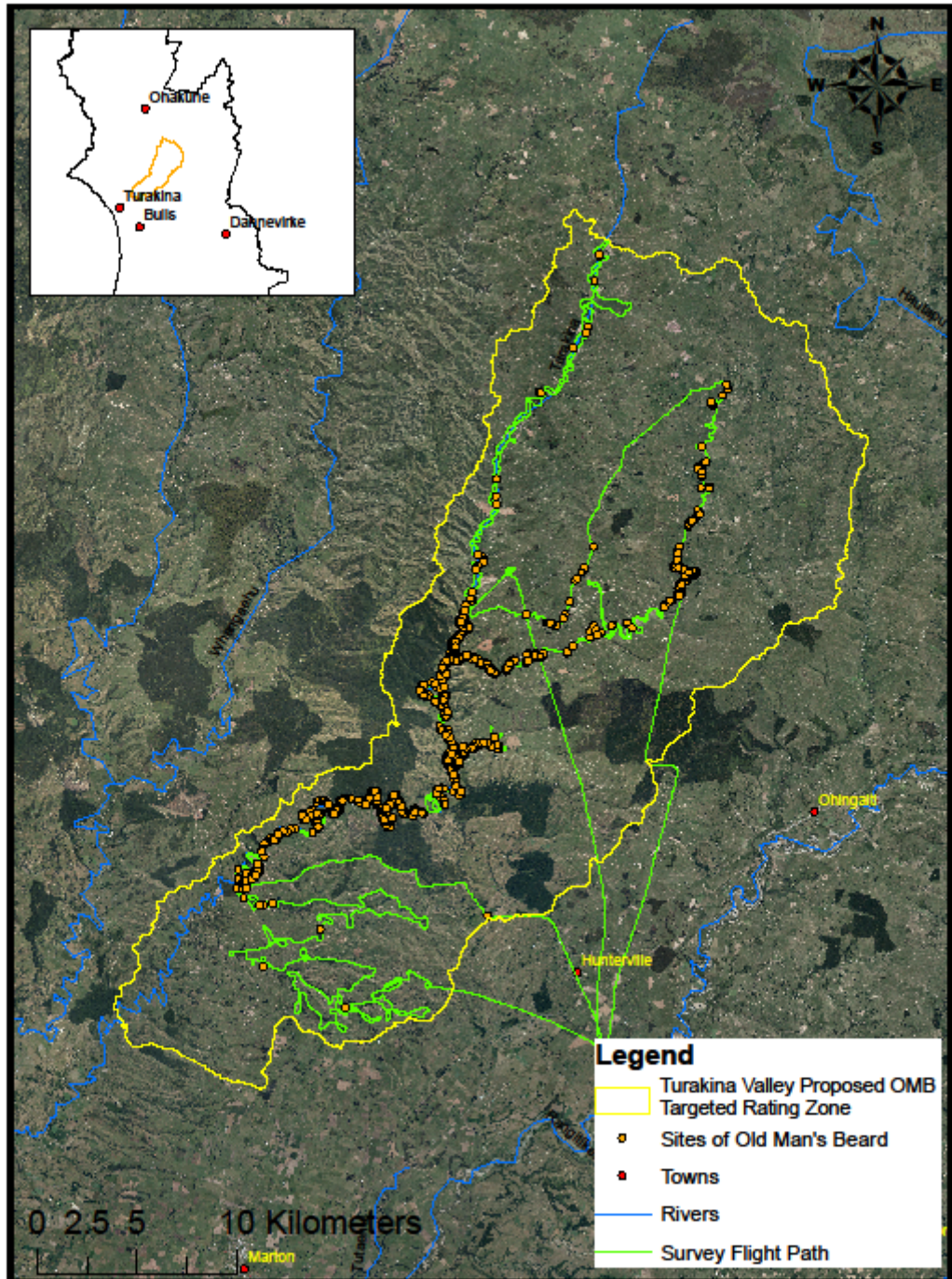
It is recommended that:

1. This report is accepted as a balanced assessment of the OMB infestation in the proposed control zone and whether a cost-effective control programme is feasible.
2. Any OMB control is directed to discreet sites of high value habitat as deemed by a working party that includes residents and Horizons ecologists.
3. High values sites be identified using the criteria within this report.

APPENDIX

1. Map showing aerial survey results

Turakina Valley Old Man's Beard Survey April 2012



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2. Results of a phone survey to ascertain the current community feeling

Discussions held on 12 February 2012 with a sub committee (of the Turakina River Scheme Liaison Committee) to establish the level of support for rating to control OMB.

Respondents:

- Pat McCarthy Forest Manager – Ernslaw One
- Viki Duncan Turakina Valley resident
- Hugh Lilburn Turakina Valley farmer
- David Lilburn Turakina Valley farmer
- Hugh Stewart Coordinator for Rangitikei Environmental Group Forest and Bird (a non Scheme ratepayer himself but has interest in land that does pay Scheme rates).

Three questions were posed:

1. Do you support the levying of rates for the control of OMB in the Turakina catchment (Makuhou Road upstream)?
2. Would you support the protection of selected stands of native bush in the mid-upper catchment if those stands had no OMB present to date or had very minor infestations?
3. Is there any other information you would like Horizons to provide or collect from further research in order to help you come to a decision on either of the above?

2.1 Preliminary Summary

The opinions expressed varied from either end of the continuum but the one clear message was that no further money or information was needed to help the respondents formulate an opinion over the need for control measures. Four of the five were firmly of the opinion they did not want to be rated for the full control of OMB in the catchment. Three of five were mildly in favour of rating for the protection of 'outstanding' pieces of native bush in the mid catchment and one of five thought full control measures would be supported by the community.

2.2 Proposed Way Forward

1. No further information is needed by the respondents to formulate their opinion on OMB control.
2. Further decisions should be delayed a week until a family response is received from the Duncan's.

3. On balance there is support for the protection of “outstanding” blocks of native bush in the mid section.
4. A letter be sent to the respondents thanking them for their participation in the telephone survey and that Horizons Regional Council is to further explore the idea supported by the majority of respondents that there is a desire to protect some pockets of “clean” bush.
4. A meeting of the respondents is to be called in the next 10 days to select and rank five to ten sites.
5. After the meeting there will be some debate about the OMB status of some of these sites. We may need to do an aerial survey of these sites to establish some answers. The \$4,000–6,000 currently set aside “to provide information/data” could be used for this purpose.
6. The list of sites be altered to reflect the survey results. The cost of any works on an annual basis be calculated for 10 years and related to the \$15,000 previously established through the consultative process as being the suggested figure set aside for annual OMB control.
7. A proposal is put to the Liaison Committee.

3. Images from the aerial survey

All images are supplied by Rangitikei Helicopters Ltd.

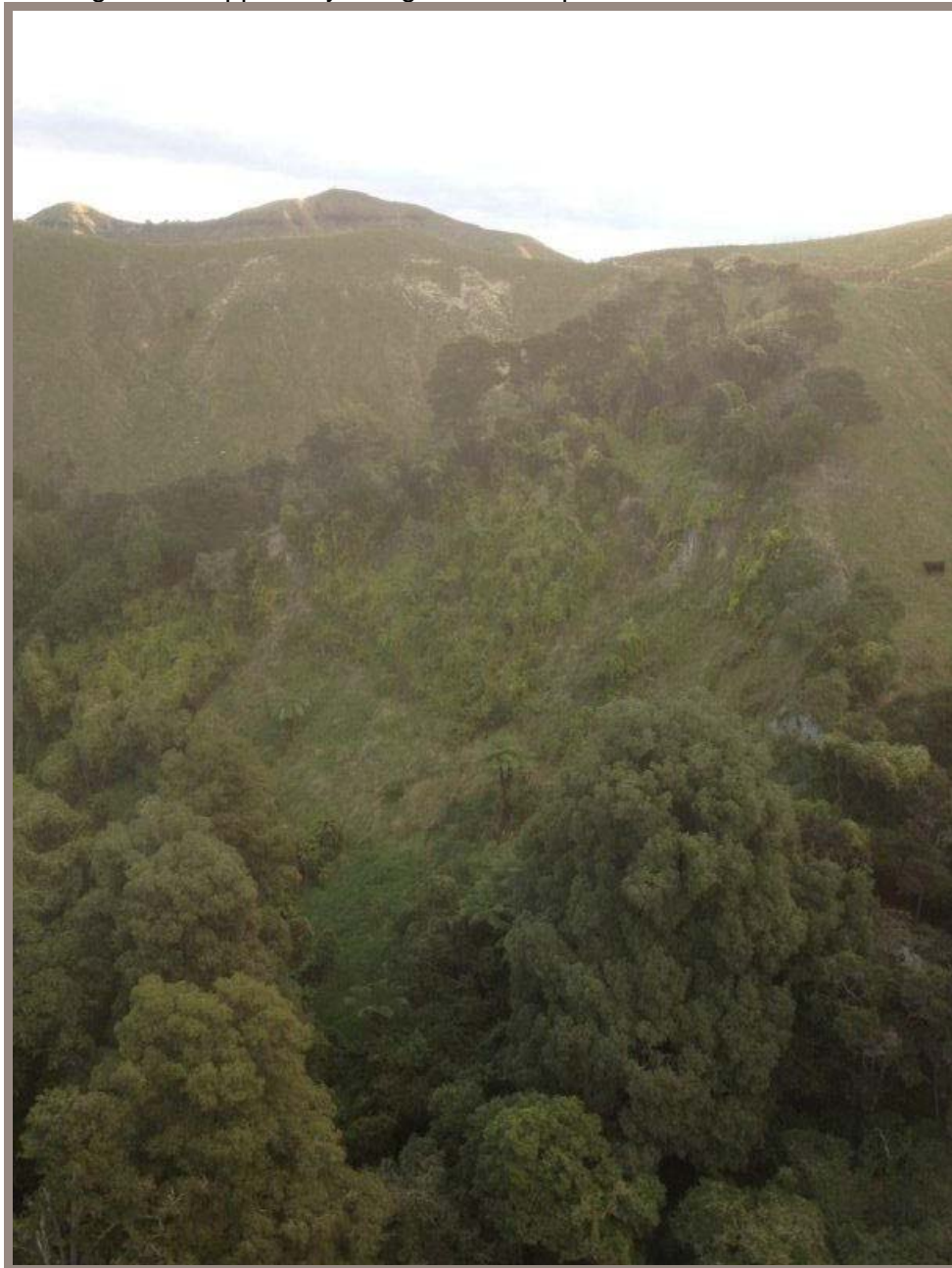


Figure 2 Open hillside showing extensive OMB



Figure 3 A site of a previous attempt to control OMB. Note the surrounding OMB outside the sprayed area. This is difficult terrain and assessment from the air allows a wider perspective of neighbouring sites in the vicinity of the control zone



Figure 4 A typical landscape in the infection zone. Steep banks, in close proximity to a watercourse with many desirable trees affected and at threat



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