

READING PASSAGE 3

You should spend about 20 minutes on **Questions 27-40**, which are based on Reading Passage 3 below.

Sea Change for Salinity

One of the most serious problems facing Australian farmers is an increase in the salt content in the soil. However, there are new weapons emerging in the fight against salinity.

- A Beneath the flat, impassive surface of Australia lie hidden mountains, valleys and gorges – ancient traps and channels for the deadly salt that is stealthily killing so much of the Australian landscape. The war on salt is calling forth new weapons. A suite of high technologies used by geologists to see underground and prospect for gold and minerals is now being used to pinpoint the presence of salt beneath the landscape, and to predict where it might move.
- B Unless this process is clearly understood, warns Chief of Exploration and Mining Dr Neil Phillips, the hard work now underway of planning and tree-planting on the surface may be rendered ineffective: salt can still sneak past and erupt, following one of the ancient river channels formed millions of years ago. The use of airborne electromagnetics to detect salt hidden beneath the landscape has been around for a decade, but the past two years have seen a major development in its precision and powers of detection. Like the use of radar in battles, it has the potential to turn the tide of the struggle in favour of the defence by helping to pinpoint, plot and predict the movements of the foe.
- C Angus Howell, who farms near Warrenbayne, in Southeast Australia, saw his first outbreak of salt in 1948. Over the ensuing decades the patches spread and multiplied until they consumed almost 100 hectares. By the late 1970s, Howell and his fellow farmers had decided it was time for action and established a government-funded “Landcare” group in a bid to save Australia’s farmland. But despite a mounting effort by scientists, farmers and governments, the “white death” continued to encroach. Small successes were eclipsed by larger defeats and fresh outbreaks.
- D “The technical solutions just aren’t there yet for dealing with broadacre salinity, nor are the social and economic solutions. How do you introduce the land-use changes that are needed when people still need to make a living?” Howell asks. There is no satisfactory solution yet. Part of the problem has lain in salt’s ability to mount ambushes, emerging somewhere new, sometimes unexpected and unexplained, beating plans to intercept it. Only now are scientists starting to really disclose its secret subterranean stores and passages.

- E** The need for such knowledge is pressing. Salt has already afflicted six million hectares of once-productive country. At present rates, it is predicted that, by 2050, it will have sterilised a total of 17 million hectares and the waters of Australia's Murray River will regularly exceed the World Health Organisation's salt limits for drinking water. Defeating this assault may take centuries, not decades.
- F** Electromagnetic surveys measure the electrical conductivity of soil to reveal the distribution of salt and the nature and variability of the regolith – the weathered rock and sediment that may lie above the bedrock. Magnetic surveys measure small differences in the Earth's magnetic field, enabling scientists to probe the deep past and reconstruct ancient landscapes – rivers, basins and faults now buried under tens of metres of sediment. These features help to reveal where groundwater is stored, dictate the direction of groundwater movement, and are critical to predicting or ruling out salinity hot-spots.
- G** Radiometric analysis is based on the detection of radiation emitted by elements contained in rocks and soils, allowing scientists to delineate landforms. These factors influence the mobility of salt through the soil profile and help determine where to plant particular crop species to tackle the problem.

Using data from the Murray River region, scientists have revealed a network of ancient drainage systems that channelled water beneath the current land-surface. These buried channels may carry salt and sometimes run at right angles to channels on the surface. This implies that the salt could move underground in quite a different direction to what one would expect by looking at surface slope and drainage.

- H** One of the biggest advances in detection, says Professor Neil Phillips, has come with the integration of different techniques such as magnetics, electromagnetics and radiometrics, and ground mapping. Individually, these technologies only gave clues to what was going on underground. Together they provide a far more revealing picture of the subsurface landscape, several hundred metres deep. Advanced airborne electromagnetics, in particular, enables scientists to take "slices" of the landscape at depths of five metres, ten metres, fifteen metres and so on, to determine where salt may be stored at depth. This is building up a four-dimensional picture of the subsurface landscape, enabling researchers to understand movements of salt in length, breadth, depth and time.

From such technologies it will be possible to locate salt stores, identify how saline they are, look at man-made and natural changes to the landscape that may cause it to mobilise, and then predict where it will head to and over what time span. This in turn will give the salt warriors time to model various ways of containing or curbing the menace, see what works best and then try it out on the ground.

Questions 27–33

Reading Passage 3 has eight sections, A–H.

Which section contains the following information?

Write the correct letter, A–H, in boxes 27–33 on your answer sheet.

NB You may use any letter more than once.

- 27 a prediction of the future risk of salt to water supplies.
- 28 the reason why technologies must be combined to be effective.
- 29 a reference to the recent improvements in the accuracy of airborne electromagnetics.
- 30 the organization of concerned farmers into an official body.
- 31 the estimated length of time salinity is likely to be a problem.
- 32 a summary of stages in a proposed plan of action to combat the salt problem.
- 33 the possibility that current re-vegetation practices are a waste of time.

Questions 34–36

Look at the list of techniques (Questions 34–36) and the list of uses which follows it.

*Match each technique with the correct use, **A**, **B**, **C** or **D**.*

*Write the correct letter, **A**, **B**, **C** or **D**, in boxes 34–36 on your answer sheet.*

34 Electromagnetic surveys

35 Radiometric analysis

36 Airborne electromagnetics

List of uses

- A** can help farmers choose the best location for plants.
- B** can show the composition of the top layer of the ground.
- C** can detect how far below ground the salt is.
- D** can determine how old the salt is in a particular area.

Questions 36–40

Choose the correct letter, **A**, **B**, **C** or **D**.

Write the correct letter in boxes 36–40 on your answer sheet.

37 What link does the writer make between salt and gold?

- A** They can both be found in the same locations.
- B** Both have been found to have an impact on the landscape.
- C** The same techniques can be used to find both.
- D** Neither is present in mountainous areas.

38 What is the ‘process’ referred to in Section B?

- A** the killing of vegetation by salt
- B** salt’s ability to travel below ground
- C** the ability of trees to decrease salt levels
- D** the detection of salt by tracing other minerals

39 According to Angus Howell, one problem in the fight against salinity is that

- A** not enough farmers are concerned about the fight.
- B** farmers’ requests for help have been ignored.
- C** some possible measures may cause farmers to lose income.
- D** the government has not provided farmers with sufficient financial support.

40 Which of the following best describes the writer’s view of the salinity problem in Australia?

- A** Farmers are fighting an enemy that moves secretly and hides well.
- B** Farmers have been able to contain this enemy in a small area.
- C** Farmers have already had significant success in fighting this problem.
- D** Farmers need to form more organised groups to solve this problem.

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一、段落信息配对 (27–33)

题号	答案	题干翻译	精确定位 & 中译	详细解释 (同义改写 & 选项排除)
27	E	预测未来咸盐对饮用水供应的风险	第E段: "...by 2050, it will have sterilised a total of 17 million hectares and the waters of Australia's Murray River will regularly exceed the World Health Organisation's salt limits for drinking water."；中译: 到 2050 年，澳大利亚默里河的水盐分将经常超过世卫组织的饮用水限值。	题干关键词 "prediction (预测)" "water supplies (供水)"。第 E 段直接预测到 2050 年饮水标准被超，完全对应。其余段落未谈到“供水”与“预测”。
28	H	说明为何必须联合多种技术才有效	第H段: "Individually, these technologies only gave clues... Together they provide a far more revealing picture of the subsurface landscape."；中译: 单独使用只提供线索，合起来才能得到更清晰的地下图景。	"must be combined (必须组合)" = together; "be effective (有效)" = provide a far more revealing picture。B 段只说某一技术精度提升，不是“何必结合”。
29	B	提到机载电磁法精度近年提升	第B段: "...airborne electromagnetics... the past two years have seen a major development in its precision and powers of detection."；中译: 过去两年其精度与探测力显著提升。	直接点名 "recent improvements in the accuracy (精度的近期改进)"。
30	C	有关把关注此事的农民组织成正式团体	第C段: "...established a government-funded 'Landcare' group in a bid to save Australia's farmland."；中译: 建立了政府资助的“土地关爱”组织。	"organization... into an official body" = 建立了由政府资助的正式团体。
31	E	估计盐碱问题将持续的时间长度	第E段: "Defeating this assault may take centuries, not decades."；中译: 解决可能要数百年而非数十年。	直接给出时间量级 (centuries)。
32	H	行动方案的阶段性总结	第H段末: "From such technologies it will be possible to locate salt stores, identify how saline they are, look at... changes that may cause it to mobilise, and then predict where it will head... This in turn will give... time to model... see what works best and then try it out on the ground."；中译: 可定位—判定—分析原因—预测趋势—建模—试验推广。	题干的 "summary of stages (阶段概述)" 恰与 H 段的动词链条相对应。
33	B	暗示当前再植被做法可能是浪费时间	第B段: "...planning and tree-planting on the surface may be rendered ineffective: salt can still sneak past and erupt..."；中译: 地表规划与植树可能无效，盐仍会“偷溜”并爆发。	"re-vegetation practices (再植被)" ≈ tree-planting; "waste of time" ≈ rendered ineffective。其他段未评价植被措施的有效性。

二、技术—用途配对 (34–36)

题号	答案	题干翻译	精确定位 & 中译	详细解释
34 Electromagnetic surveys	B	可显示地表上覆层(风化层)组成	第F段: "Electromagnetic surveys measure... to reveal the distribution of salt and the nature and variability of the regolith – the weathered rock and sediment above the bedrock."；中译: 显示风化层/覆盖层的性质与变化。	"regolith (风化层, 上覆层)" = "top layer of the ground"。故选 B。
35 Radiometric analysis	A	可帮助农民选择最佳作物/种植位置	第G段: "Radiometric analysis... help determine where to plant particular crop species to tackle the problem."；中译: 帮助确定在哪里种植特定作物。	直接对应 "help farmers choose the best location for plants"。
36 Airborne electromagnetics	C	可探知盐在地下的深度	第H段: "Advanced airborne electromagnetics... enables scientists to take 'slices'... at depths of five metres, ten metres... to determine where salt may be stored at depth."；中译: 用不同深度切片确定盐的埋藏深度。	与 "detect how far below ground the salt is" 一致。注: 选项 **D (判断盐龄)** 文中无据。

三、单选题 (37–40)

题号	答案	题干翻译	精确定位 & 中译	详细解释 (含错误项排除)
37	C	作者把盐与黄金的联系归结为什么?	第A段：“A suite of high technologies used... to prospect for gold and minerals is now being used to pinpoint the presence of salt...”；中译：勘金的高新技术如今也被用来找盐。	同义改写：the same techniques can be used to find both → 选C。A (同地点) 文中未言；B (对景观的影响) 不对应；D (山区不存在) 无据。
38	B	第B段所指的“process”是什么?	第B段：“...tree-planting... may be rendered ineffective: salt can still sneak past and erupt, following one of the ancient river channels ...”；中译：盐会沿古河道在地下移动并突然冒出。	“process”= 盐在地下迁移/穿行的机理 → 选B。A (植被被盐杀死) 是后果；C (树降盐能力) 不符；D (追踪矿物检测盐) 无关。
39	C	按Howell的观点，治理盐碱的一个问题是?	第D段：“How do you introduce the land-use changes that are needed when people still need to make a living?”；中译：人们还要谋生，如何推行土地利用变化?	含义=一些措施会影响收益/生计 ⇒ 可能导致农民收入减少 → 选C。A (农民不关心) 无据；B (求助被忽视) 无据；D (政府资金不足) 文中未提。
40	A	哪个最能概括作者对澳洲盐碱问题的看法?	多处用“战争/敌人”隐喻：第B段“sneak past... foe”；第C段“‘white death’ continued to encroach”；第D段“mount ambushes”；第B段“turn the tide of the struggle”。	这些措辞都把盐描写为隐蔽行动的敌人 ⇒ 选A。B/C与第C段“小胜被大败盖过”相悖；D (需要更多团体) 仅C段提到已有组织，非作者主张。